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Voiceless in Medical School: Students with Physical Disabilities

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Voiceless in Medical School: Students with Physical Disabilities

A Dissertation

Presented to

The Faculty of the School of Education

The College of William & Mary

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

By

Michael J. Donlan

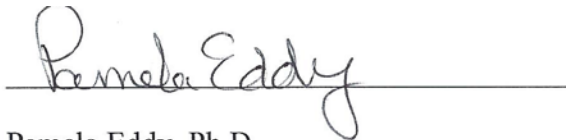
August 2016

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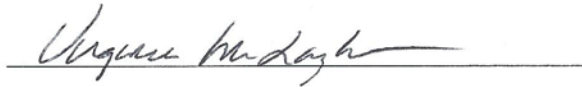
Michael J. Donlan

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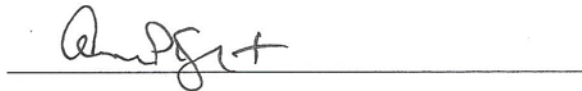


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Abstract

Students with physical disabilities are underrepresented in medical school. Individuals with physical disabilities have largely been left out the diversity movement, which has increased access to medical education for women and minority students (Steinberg, Iezzoni, Conill, & Stineman, 2010). For students with physical disabilities who are admitted, not much is known about their experiences, thus the focus of this study was to explore the medical school experiences of individuals with physical disabilities. As the theoretical framework, the social model of disability as developed by Oliver (2009) allowed for an examination of how medical students with physical disabilities experienced the medical school environment.

For this study, I utilized a qualitative approach as a guide. Seven former medical students, six males and one female, with physical disabilities were interviewed about their experiences through medical education, from their efforts to gain admission to medical school, through their didactic and clinical education and training, and ultimately to their practice as a physician. The stories of the participants created a narrative account of the subjective meaning they created. This research found that although deficit models of disability persist in society, each participant overcame their physical impairment, and societal barriers, physical and social, to complete medical school and residency programs.

Each participant found success through a combination of alternative methods of acquiring knowledge and performing medical procedures, internal motivation and determination, and the support of allies. The findings demonstrate that the structural and

social construction of the medical school environment is inhospitable to individuals with physical disabilities.

Keywords: medical school, physical disability, social model, identify

Voiceless in Medical School: Students with Physical Disabilities

CHAPTER I: INTRODUCTION

“Disability is not a brave struggle or ‘courage in the face of adversity.’ Disability is an art. It’s an ingenious way to live.” – Neil Marcus

Individuals with physical disabilities have been and continue to be underrepresented in medical school. Although it is estimated that the lifetime prevalence of physical disability is approximately three out of every 10 individuals (Brault, 2012), and that approximately 11% of undergraduate students have a disability of any type, (U.S. Department of Education, 2016, Table 311.10), individuals with physical disabilities account for less than 1% of all medical students in the United States (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu, Tsang, & Wainapel, 1996). The following vignettes perhaps highlight the difficulties medical students with physical disabilities experience as they seek admission to medical school and if admitted, the challenges of persistence to graduation.

In 1973, Dr. Julie G. Madorsky was teaching medical students about the vocational possibilities of individuals with disabilities. A gowned patient was presented to the students. This patient was presented as having cerebral palsy, including a speech disorder. The medical students did not have much confidence in the patient’s ability to learn or to engage in a successful career. “The collective opinion was that the most he could do would be to sell pencils on the street” (Corbet & Madorsky, 1991, p. 514). The patient was excused, dressed, and returned and was then presented as Thomas Strax, MD,

then the Assistant Director at Moss Rehabilitation Center in Philadelphia (Corbet & Madorsky, 1991). Although this “experiment” was conducted more than 40 years ago, there has not been a tremendous change in how the medical community views individuals with disabilities (Wainapel, 1999).

In 1992, after finishing his undergraduate education from King’s College with honors grades and a high Medical College Admissions Test (MCAT) score, James Post felt confident that he would be accepted into one of Pennsylvania’s medical schools. However, Post was not accepted into any medical school during the following academic year. Due to a diving accident when he was 14, Post damaged his spinal column and now has quadriplegia (George, 1995). Post revealed that nothing was as traumatic for him as was his experience in trying to get into medical school (George, 1995). Post had hoped that the Temple University School of Medicine, whose faculty successfully taught a medical student who was blind in the 1970s, would be able to provide him with the necessary accommodations in order to successfully complete his medical education. Dr. Ronald Tuma, who at the time, was the assistant dean of admissions, was asked about the education of the medical student who was blind and replied, “It was an experimental trial to see if it would work; we determined it was not feasible” (as cited in George, 1995, p. 14). That former medical student, Dr. David Hartman, is now a successful child psychiatrist. Post did eventually get accepted to the Albert Einstein Medical College of Yeshiva University, earned his medical degree, and is a successfully practicing physician.

Even after completing four years of medical school, students with disabilities seeking placement into residency programs may continue to experience roadblocks. Dr. Mehri Brown, a practicing psychiatrist who has cerebral palsy, successfully completed

her medical education at Brown University School of Medicine. Through adaptation and an acceptance of her procedural limitations, she earned her medical degree, yet was unable, in two tries, to match into a pediatrics residency program, her preferred specialty (Brown, 1998). The process of matching into residency programs is already a difficult one and to Brown, a candidate who required accommodations; the process was all the more difficult (Brown, 1998).

These three vignettes demonstrate the challenges confronting medical students with physical disabilities. All three individuals, Drs. Strax, Post, and Brown, successfully earned their medical degree and are currently practicing physicians. Despite physical disability, each has demonstrated the ability to not only adapt to their environment, but to also overcome any obstacles and barriers imposed by society.

The three individuals presented in this introduction were eventually successful. Each successfully completed medical school and a residency program and are practicing physicians. The continued exclusion of talented individuals from the study and practice of medicine deprives society of the benefits that these individuals may provide.

Problem Statement

Exploring the impact of federal disability legislation and the response by the Association of American Medical Colleges (AAMC) reveals much about the institutional barriers faced by individuals with physical disabilities when they seek entry into medical school. Section 504 of the Rehabilitation Act of 1973 prohibited discrimination against an otherwise qualified individual seeking admission to an institution of higher education. Additionally, the Rehabilitation Act required institutions to provide education aids to those individuals with a disability who meet the academic and technical standards

required for admission (Schwartz, 2012). As a response, in 1979 the AAMC issued guidelines for the enrollment of students with disabilities (DeLisa & Thomas, 2005). This AAMC report noted that the MD degree is to be awarded to individuals with a broad knowledge of the general field of medicine and with all of the skills needed to practice all medical specialties—a concept which became known as the undifferentiated graduate (as cited in Schwartz, 2012). The 1979 AAMC advisory panel also issued a recommendation on the technical skills and abilities that the undifferentiated graduate should possess. The student should be able to, in a reasonably independent manner, observe, communicate, and have the necessary motor, behavioral, and intellectual-conceptual skills needed to practice medicine (DeLisa & Thomas, 2005). The technical standards, as recommended by the AAMC, have precluded some individuals with physical disabilities from the study of medicine. Individuals with disabilities, who could not perform all skills required of physicians, as demonstrated through mastery of the technical standards, could never truly become the undifferentiated graduate and as such were effectively excluded from medical school (Schwartz, 2012).

The Americans with Disability Act of 1990 (ADA), which expanded the coverage of protection offered under the Rehabilitation Act, now required colleges to provide reasonable accommodations to policies and practices unless doing so would fundamentally alter the nature of the service provided or create an undue burden on the institutions (Watson & Hutchens, 2005). The AAMC in 1993 and 1998 provided additional guidance to medical schools seeking to comply with new federal disability law (Schwartz, 2012). These AAMC guidelines noted that medical students should possess the technical skills needed to practice medicine. Thus, an interpretation of this guideline

in practice means that students should possess sufficient motor skills to perform all activities necessary for the practice of medicine. In addition to motor skills, students are expected to possess the ability to touch, experience pain, and sense temperature.

Although the intention of the AAMC is to assist medical schools, it would appear that the 1993 and 1998 guidelines have had the opposite effect in that talented individuals have been excluded from medical education (DeLisa & Thomas, 2004). Three studies provide evidence suggesting that there has been an overall decline in the enrollment percentages of individuals with physical disabilities. Between 1975 and 1982, 0.23% of individuals in medical school had physical disabilities (Moore-West & Heath, 1982). Later, between 1987 and 1990 it was found that the percentage of individuals with physical disabilities enrolled in medical school was 0.19% (Wu et al., 1996), and most recently was 0.15% between 2002 and 2005 (Moutsiakis & Polisoto, 2010). The relative percentage of medical students with physical disabilities has been in decline.

In addition to the studies on the institutional barriers to medical school, there is research that explores the misconceptions of individuals with physical disabilities by others. Although anti-discrimination legislation has been enacted to prevent discrimination against individuals with disabilities, doctors and aspiring and current students with disabilities often experience a lack of opportunity and encounter unhelpful attitudes by colleagues and classmates. At the very least, students and doctors with disabilities feel marginalized and undervalued (Mercer & Pinder, 2000). Additional research has revealed that misinformation and prejudice about disability is often perpetuated within the healthcare profession. Healthcare workers often have a lower estimate of the quality of life of the individual with disabilities than does the individual

themselves (DeLisa & Thomas, 2005). Additionally, even though physicians spend a significant amount of time working with individuals with disabilities or chronic illness, it is typical that medical school curriculums do not spend much time educating students about caring for patients with disabilities (Hartman & Hartman, 1981).

There are some former medical students with disabilities who have described some of the misconceptions that fellow students believed about them. For example, as illustrated above, Mehri Brown (1998), a psychiatrist with cerebral palsy, described the awkward initial interactions with her medical school classmates upon matriculation. Brown detailed the concerns of her classmates when she experienced difficulty in practicing medical procedures. Although Brown's disability is physical, her classmates believed her to be emotionally impaired and incapable of becoming a successful physician. It was only after talking to her classmates did they see that she was a capable student and that her reasons for attending medical school were no different than their own (Brown, 1998).

Perhaps the greatest factor in the relatively low number of medical students with disabilities who are even admitted to medical school is the lack of study on medical students with physical disabilities (Wainapel, 1987). Without more knowledge and information about the lived experiences of medical students with physical disabilities, it remains unknown how to begin to enact changes to best support these students. Although Wainapel (1987) suggested that physicians and students with physical disabilities document their experience and write about their struggles and successes, little has been documented in the nearly 30 years since the suggestion was made. By examining the socially constructed realities of former medical students with physical disabilities,

through qualitative methods, we can learn much about their experiences. As former medical students use their own voices to reveal their attitudes and perceptions, we can better understand their unique realities. By documenting their experiences, medical educators will be able to develop strategies to help medical schools assist students with physical disabilities (DeLisa & Thomas, 2005). Additionally, by documenting their experiences and perceptions, it is hoped that the attitudes within the medical community regarding viewpoints of students with disabilities will change in a more positive manner. A change in attitudes would enable others to view students with physical disabilities as having the same potential for success as their non-disabled peers (DeLisa & Thomas, 2005).

In an eloquently written commentary, Kathleen Manders (2006), a practicing physician with a physical disability, wrote about her experiences in medical school. Manders (2006) pondered, “What voice do students with disabilities have, within a medical school” (p. 1586)? She concluded that voice in medical school is varied and inconsistent, as she found herself becoming an advocate, not only for herself, but also for those who have followed. Manders (2006) advocated for those in similar positions to have a voice. Only through thoughtful discussion will any progress be made within the medical education community on helping individuals with physical disabilities (Steinberg, Iezzoni, Conill, & Stineman, 2010). It is perhaps difficult to openly discuss the experiences of students with physical disability when there is so little information available to inform the discussion.

The issue here is that talented individuals, who are otherwise qualified for medical school, are often excluded from medical school. Although other minority groups

have made strides to increase their participation in medical education, students with disabilities continue to be marginalized (Steinberg et al., 2010). In part, this exclusion is due to the structural as well as attitudinal barriers that exist to create an atmosphere of discrimination. This discrimination is often not due to overt discrimination, but instead of a lack of understanding of those with physical disabilities (Wainapel, 1987). The problem in the field centers on the lack of research regarding the experiences of medical students with physical disabilities.

Research Questions

The purpose of this research was to document and develop an understanding of the experiences of former medical students with physical disabilities. Using narrative inquiry, I have investigated the subjective meanings that the participants developed during their attendance in medical school. For this study, I captured the experiences of former medical students with physical disabilities who are now practicing physicians. Narrative inquiry has provided the opportunity to explore the inner voice of the former medical student with physical disability as well as provide an understanding of the ways in which they interacted with others in the medical school environment.

My primary research question is:

How did former students with physical disabilities experience medical school?

In addition, the following four questions were developed to assist in our understanding of how the participants experienced medical school:

- A. What challenges and barriers (social and physical) did former students with physical disabilities experience in medical school?

- B. How do former students with physical disabilities socially construct their disability within the medical school environment?
- C. How were those barriers overcome?
- D. How did former students with physical disabilities achieve success in medical school?

Significance of the Problem

There is a wide disparity between the percentage of individuals with a physical disability in the general population and the percentage of individuals with physical disabilities enrolled in medical schools. Although women and racial/ethnic minority populations have made significant advances regarding admission to medical school, individuals with physical disabilities have largely been left out of the diversity movement (Steinberg et al., 2010). Understanding more about the limitations created due to stereotypes using the social model of disability will hopefully enable the medical education community to create environments hospitable and accepting of individuals with physical disabilities.

There still exists so much misunderstanding, and at times hostility or indifference towards individuals with disabilities that medical students and even physicians with a disability find themselves undervalued and actively discriminated against (Mercer & Pinder, 2000). Disability is still often equated with inability, and individuals with disabilities continue to be stigmatized (Wainapel, 1999). In order to understand the needs and strengths of individuals with physical disabilities, it is imperative that the problem be better understood from the perspective of the affected individuals (Lewis, 1983).

For too long, the voices of medical students with physical disabilities have been silenced. Whereas other underrepresented groups have made progress, the enrollment percentages of individuals with disabilities have continued to decline (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996). It appears that too often what individuals with disabilities are not able to accomplish is emphasized, even at the expense of what they can accomplish. This narrative study, voiced by former medical students, with disabilities addresses the unique needs facing these individuals. It is my hope that this study may be utilized so that medical schools may more readily be able to help students with disabilities gain acceptance into the arena of medical education. This study highlights the ways in which students with disabilities were successful in medical school. Furthermore, the study participants effectively dispelled misconceptions, which hopefully will change attitudes regarding the ability of individuals with physical disabilities to be successful in medical school.

The research from this study can also be useful, not only in addressing what is misunderstood about those with physical disabilities, but also to inform policy, both at the medical school level and with the AAMC. Former students have revealed the challenges they faced and how they negotiated those challenges. Medical schools now have an opportunity to be more responsive to the needs of students with physical disabilities, not only in how they are assisted while in school, but also in developing policies to create greater opportunities for individuals with physical disabilities to gain admission.

The AAMC has privileged the concept of the undifferentiated graduate, whereas every student graduating medical school should have the ability to practice in every

specialty of medicine. The issue here is that those with physical disabilities may have impairments, which could restrict their ability to practice every medical specialty. This study provides perspectives on the concept of the undifferentiated graduate, which may prompt more discussion of its applicability to modern medical education and practice.

Students with physical disabilities can offer much to enrich the medical school environment and the medical profession. Students with physical disabilities provide class diversity and can be role models to other students and patients (Moore-West & Heath, 1982). Students with disabilities can help their non-disabled peers develop a better understanding of the experiences of individuals with disabilities (Hartman & Hartman, 1981). Those personal connections that are developed in medical school can perhaps help the future physician relate to a diverse patient population and develop empathy for others with disabilities and chronic illnesses.

Physicians are also expected to be able to effectively communicate with patients. Students with disabilities, because of their own personal experiences overcoming adversity, may be well suited to interact with patients (Meier, 1993). The ability to empathetically relate to the patient is a skill that may be lacking in medicine; physicians with disabilities can help to fill this void (Meier, 1993).

This study can also be utilized by physicians who acquire a physical disability later in life. Although all of the participants acquired their physical disability prior to or during medical school, the information they shared about the barriers they faced, and subsequently overcame, can be of great use. The acquisition of physical disability later in life does not preclude one from practicing medicine.

Conceptual Framework

This study focused on the experiences of former medical students with physical disabilities. The primary goal was to understand how former students perceived their experiences in medical school and the extent to which their disability was socially constructed within the medical school environment. Additionally, I endeavored to gain an appreciation of the challenges, both physical and social that students encountered. I utilized the social model of disability (Oliver, 1990) to interpret the findings of this research. This social model situates issues of disability in a broader context by understanding the influence of social norms on perceptions.

Earlier models that have been utilized in the study of disability focused on individual impairment and can be categorized as deficit models (Oliver, 1990; Pfeiffer, 2002; Shakespeare & Watson, 2002). These deficit models emphasized impairment as the cause of disability. (These models and the development of the social model of disability will be discussed on chapter two). In contrast, the social model of disability rejects the notion that disability is a result of physical and/or psychological impairment; instead it posits that the problem of disability is a societal issue (Oliver, 1990). Whatever limitations do exist for individuals with a physical disability are not the result of physical impairment, but rather of not ensuring the proper level of support and services needed for a fully accommodating and integrated society to exist (Oliver, 1990). The social model concept posits that the relationship between individuals with impairments and a discriminating society results in disability as a socially constructed construct (Shakespeare, 1996). Disability is thus framed as a subjective process within which prior inaccurate stereotypes may be rejected (Shakespeare, 1996).

Finkelstein (2001) noted that the utility of models lies not in their ability to explain, but in how they allow an object to be examined, “in different ways and under different conditions” (p. 3). It is through models that we are able to gain additional insights through perspectives not available to us in reality (Finkelstein, 2001).

As a means to study the experiences of individuals with physical disabilities in medical school, the social model of disability is an appropriate conceptual framework because it offers an opportunity to examine societal barriers instead of focusing on physical impairments. The experiences of medical students with physical disabilities are influenced by not only the individual notion of disability, but also the subjective realities developed through social interactions, in this case within the context of medical education. Through this study, I examined the experiences of former medical students with physical disabilities, using the lens of the social model of disability.

In accepting the social model of disability as the conceptual framework, it is important to also acknowledge the ways in which the deficit models limit our understanding of physical disability within this study. The three vignettes discussed in the introduction highlighted not only that each student could successfully complete medical school, but also that they experienced societal barriers, both within and outside of the medical education community. A deficit model would perhaps provide an overly easy explanation for the struggles each student experienced by blaming their physical impairment and tangible barriers found in the medical education environment for the difficulties they experienced. Instead, the social model of disability challenges us to look beyond those physical impairments and to focus on an inaccessible environment. The root causes of disability, within the context of the medical school environment, were

explored by examining the lived experiences of former medical students with physical disabilities. Focusing on former medical students allowed an opportunity to hear first-hand their experiences during medical school. The experiences of former students with physical disabilities, who successfully graduated, informed this study. In particular, attention was given to how participants socially constructed their disability within the medical school environment.

Study Methods

In order to answer the proposed research questions, this study utilized narrative research in which lived experiences of former medical students with physical disabilities were recorded. Primarily, the narrative methods work of Riessman (2008) served as a guide in the exploration of the perceptions of former medical students. It is through this exploration that I developed an understanding of the complex issues and challenges experienced while attending medical school.

Definition of Terms

The following terms are used throughout this document, and the listing below provides the ways in which each was defined for use in this research study.

Disability. As adopted by the 2006 United Nations treaty and signed in 2007, Convention on the Rights of Persons with Disabilities, individuals with disabilities are “those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others” (Article 1, para. 2).

Impairment. Impairments are biological; they are the physical and psychological limitations that an individual possesses.

Physical Disability. For the purpose of this study, physical disability will include those individuals with acquired or congenital impairments due to neurologic (to include stroke, cerebral palsy, multiple sclerosis, muscular dystrophy, or spinal cord injury) or orthopedic conditions which may include limb loss or amputation, spinal deformity or degeneration, and limb deformities (Kaitz & Chen, 2010). Hearing loss and visual impairment was also included in the definition of physical disability.

Social Constructivism. The subjective meanings that individuals form about their experiences through interactions with their environment and other individuals (Creswell, 2013).

Social Model of Disability. Within the social model, disability is the result of a society in which the needs of individuals with impairment are not taken into proper account (Oliver, 1990). Disability is not caused by impairment, rather it is a social state caused by barriers, both physical and societal (Oliver, 1990).

Technical Standards. Technical standards are the essential skills and abilities that each medical student is expected to possess in order to qualify for admission.

Undifferentiated Graduate. Term adopted in 1979 by the Association of American Medical Colleges whereas every medical school graduate should possess a broad knowledge of the field of medicine and the ability to practice all medical specialties.

Summary

Students with physical disabilities are an underrepresented population in medical school. Despite federal disability legislation, the number of individuals with physical disabilities is less than 1% (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010;

Wu et al., 1996). In addition to the structural barriers that students face, there are societal obstacles that are difficult to overcome, which only perpetuate the relative low number of students with physical disabilities who attend and graduate from medical school. To date, research has not focused on the experiences facing individuals with physical disabilities attempting to gain admission to medical school or the challenges faced by these students post-matriculation. Only by documentation of the experiences of students will the medical education community be able to develop strategies to be more inclusive. This study seeks to enhance the understanding of the experiences of students with physical disabilities, by documenting the subjective meanings that these former students develop while in medical school.

Chapter 2 contains a presentation of the relevant models of disability, with particular attention given to the development of the social model of disability. Additionally, how the medical education community has responded to notable federal disability legislation is explored. Chapter 2 also has a review the concept of the undifferentiated graduate as this concept has shaped how medical schools approach individuals with physical disabilities. An exploration of the experiences of medical students with physical disabilities is also included along with discussing the possible benefits of admitting students with physical disabilities. Chapter 3 includes the methods that will guide the study of the experiences of medical students with physical disabilities. Included in this section are the theoretical framework and research tradition. Also, Chapter 3 contains the methods of selecting participants, generating data, and the analysis of that data. How the study will be of quality and rigor is also discussed. Chapter 3 concludes with a discussion of ethical considerations, limitations and delimitations, and

the research positionality statement. Within Chapter 4 are the portraits of the seven participants, followed by Chapter 5, which includes the study findings. The conclusions, recommendations for practice and future research are detailed in Chapter 6.

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter reviews the extant literature to help place the central research question of this study in the proper context. To explore how students with physical disabilities experience medical school, it is essential to have an understanding of the current admissions practices, relevant federal disability legislation, and how the AAMC has interpreted that legislation. The concept of the undifferentiated graduate will also be discussed. This latter concept perhaps reveals much about how the medical education community views those students with physical disabilities and will enrich the final analysis.

The experiences of former medical students with physical disabilities are also presented. Their particular stories help us to understand what they have encountered both as former students, but also as practicing physicians. This chapter also includes a discussion of relevant disability models. The development of the social model and the opposition to the social model is also presented. The social model is the conceptual framework that informs the analysis of the information gathered through this study.

Disability Legislation and Response

The Rehabilitation Act of 1973 is often regarded as the first civil rights legislative action aimed at protecting individuals with disabilities (Watson & Hutchens, 2005).

Specifically, Section 504 of the Rehabilitation Act indicates that:

No otherwise qualified individual with a disability. . . shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits

of, or be subject to discrimination under any program or activity receiving Federal financial assistance. (p. 394)

As most, if not all, medical schools receive federal funding, Section 504 and related regulations must be adopted for use (Schwartz, 2012).

In 1977, the United States Department of Health, Education, and Welfare issued regulations indicating that a qualified individual is a student with a handicap who meets the technical and academic standards required for admission to an institution of higher education (Schwartz, 2012). Additionally, the Department of Education adopted regulations in implementing Section 504 which required institutions to provide methods of evaluation that would not discriminate or have the effect of discriminating against a qualified applicant (Watson & Hutchens, 2005). An institution must adopt methods of evaluation and assessment of academic achievement for students with sensory, manual, or communicative impairments; assessments are to capture the academic achievement of the student instead of focusing on the students' impairment (Watson & Hutchens, 2005). It is also from Section 504 that the right to reasonable accommodations is introduced to post-secondary education (Watson & Hutchens, 2005). So that educational requirements do not discriminate against students with disabilities, institutions of higher education are required to provide appropriate and reasonable accommodations for students who otherwise meet admissions standards (Schwartz, 2012).

Technical standards. In 1979, as a response to Section 504 and related regulations, the Association of American Medical Colleges (AAMC) assembled a groups of physicians tasked with developing the technical standards required for medical school admission (Schwartz, 2012). This group, known as the Special Advisory Panel on

Technical Standards for Medical School Admission, issued a final report which recognized not only the importance of prior academic achievement, but also the importance of personal and emotional characteristics, resourcefulness, motivation, health, and work ethic when making admissions decisions (Schwartz, 2012). Although the panel of physicians disapproved of medical schools denying admission to candidates with disabilities, they did conclude that there are technical standards that physicians must possess. As such, candidates for medical school need to be assessed on those technical skills (AAMC, 1980). These technical skills are what this group of physicians considered to be the necessary abilities and skills essential to graduating medical students (DeLisa & Thomas, 2005).

The panel concluded that candidates for the medical degree must have functional use of the senses of hearing and vision, and that candidates have functional use of equilibrium, sense, smell, and taste needed for diagnosis. Additionally, candidates must have sufficient exteroceptive sense (touch, pain, and temperature), sufficient proprioceptive sense (position, pressure, movement, stereognosis, and vibratory) and sufficient motor function. Candidates should also be able to integrate information consistently, quickly, and accurately and to be able to learn, integrate, analyze, and synthesize data. More specifically, it was concluded that candidates for the medical degree master five areas of expertise: observation (performed in a reasonable independent manner); communication; motor skills (performed in a reasonable independent manner); intellectual-conceptual, integrative and quantitative abilities; and behavioral and social attributes (DeLisa & Thomas, 2005; Schwartz, 2012).

The AAMC also stated that individuals should be able to perform independently and that technologic compensation was acceptable, yet the use of a trained assistant was prohibited (Reichgott, 1998). The use of an intermediary was seen as not acceptable since that individual could impose her or her judgment in place of the medical student (Reichgott, 1998). The technical standards that were outlined by the 1979 AAMC report, while an attempt to assist medical schools implement the Rehabilitation Act, denied acceptance to many students with disabilities (Reichgott, 1998). As an example, a blind student would need the use of an intermediary, deemed unacceptable by the 1979 AAMC report, to collect visual information (Reichgott, 1998). Furthermore, the use of an intermediary would constitute a fundamental alteration to the educational program (Reichgott, 1998).

Soon after the AAMC advisory panel issued their recommendations on the technical standards that graduating medical students should master, Moore-West and Health (1982) conducted one of the first studies to look at individuals with physical disabilities enrolled in medical school. A questionnaire was sent to deans of student affairs at all accredited United States medical school in existence at the time (n=117) seeking information on the number of individuals with disabilities enrolled, the preparedness of the school in accommodating individuals with disabilities, the type of disability, and the problems encountered by students as well as the perceived benefits of admitting individuals with disabilities.

Of the 62 medical schools that responded, 20 indicated that no student with a physical disability has been accepted or matriculated within the previous five years (1975-1980) and five schools indicated that they did not keep such records and thus could

not respond to the inquiry (Moore-West & Heath, 1982). The authors found that only 0.23% of all medical students had a physical disability between the years 1975 to 1980. Although only 62 of a possible 117 schools responded to the survey, this study provides a baseline in that it was one of the first of its kind to assess the enrollment percentages of students with physical disabilities in medical school.

It is perhaps difficult to identify the exact reasons for such a small percentage of individuals with physical disabilities who attend medical school. We do know that barriers exist as demonstrated by the study of Moore-West and Heath (1982). That less than 1% of the medical school population had physical disabilities shows the level of underrepresentation. If we are to develop an understanding of the reasons for such a low enrollment, it is necessary to expand our understanding of how individuals with physical disabilities experience medical school. It is through this understanding that we may hopefully identify those barriers, both physical and societal, to matriculation and graduation.

ADA of 1990 and medical school response. In 1990, the Americans with Disabilities Act (ADA) was enacted to support and expand the coverage of the 1973 Rehabilitation Act (Watson & Hutchens, 2005). The ADA sought to provide clear, consistent, and enforceable standards aimed at ending discrimination against individuals with disabilities. In order to end de facto segregation, the ADA strove to ensure that individuals with disabilities be fully integrated into the social and economic mainstream of society (Schwartz, 2012). As it relates to higher education, the ADA prohibits the use of standards, criteria, or methods of admission that are discriminatory against those with a disability (Schwartz, 2012). As such, medical schools are required to review

admissions standards and to apply those standards uniformly to all students (Schwartz, 2012). All applicants must be evaluated on their ability to complete the medical school curriculum; applicants with physical disabilities can no longer be excluded from admission based solely on their disability (Schwartz, 2012).

The ADA (1990) also addressed those technical standards that medical students should master. The ADA acknowledge that some students, and in this instance, those individuals with physical disabilities, may need accommodations in order to reach those standards (Schwartz, 2012). Technical standards can be viewed as desired ends, rather than means. Admissions officers should consider the ability of the applicant to meet those standards with or without accommodation in making admissions decisions (Schwartz, 2012).

Additionally, the ADA (1990) outlined what was required of schools in order to properly provide reasonable accommodations. Schools must accommodate individuals with disabilities so long as the student is otherwise qualified and has the ability to complete curricular requirements. The ADA (1990) defined an otherwise qualified applicant as one who, with or without accommodations, has the ability to complete the academic program. The accommodations provided need not fundamentally alter the academic program nor impose an undue burden to the school. Additionally, the school may not seek to collect information on disability, yet any student who seeks accommodations must present documentation describing the exact diagnosis, nature of the impairment, and recommendations for accommodations.

Just as it had done with after the passage of the Rehabilitation Act of 1973, the AAMC published a follow-up document to assist medical colleges in interpreting the new

legal requirement of the ADA (Schwartz, 2012). These guidelines, published in 1993, affirmed the essential functions that medical students must possess in order to successfully complete curricular requirements. Accordingly, the medical student must have somatic sensation and the functional use of senses of vision and hearing. Medical student must be able to experience pain, be able to sense touch, temperature, movement, pressure, and position. The medical student must also possess sufficient motor function in order to carry out activities necessary for their education. Additionally, medical students must have sufficient intellectual capacity to analyze, integrate, and synthesize data gathered via the senses in an accurate and consistent manner (AAMC, 1993). In order to assist student with disabilities, the AAMC acknowledged an obligation on the part of the medical school to provide reasonable accommodations. However the AAMC report only offered an ambiguous discussion of reasonable accommodations.

Even though the guidelines were an attempt to assist medical colleges' interpret ADA regulations, the 1993 AAMC report has prevented otherwise qualified individuals from gaining acceptance to medical school (DeLisa & Thomas, 2005). DeLisa and Thomas (2005) observed that, as reported in various studies, individuals with physical disabilities often could not master the technical standards as described by the AAMC and medical colleges are still left unsure how to provide reasonable accommodations.

In addition to asserting the essential functions that medical students must possess, medical schools are to develop and implement consistent assessment standards that align with the mission and objectives of the school. Additionally, policies and procedures regarding disability are to be formalized and implemented consistently (AAMC, 1993). Medical schools could not exclude applicants with disabilities based on their disability,

yet may publish technical standards required for the medical degree (Schwartz, 2012). This issue, of the creation of technical standards, continues to be debated within the medical education community and will be discussed later within this chapter.

Over concerns that individuals with disabilities continued to be denied entrance to medical colleges based solely on disability, the Association of Academic Physiatrists (AAP) offered recommended guidelines to admission officers for the selection of candidates with disabilities. The AAP, perhaps realizing the negative effect of technical standards on the admission of individuals with disabilities, sought to affirm the importance of admitting qualified applicants with disabilities. While the AAP (1993) acknowledged that medical schools are obligated to educate and produce competent physicians, it also stated that not every graduate should be expected to gain all technical skills. Yes, all students should be held to the same admissions standards, met with accommodations if needed, yet there are multiple ways in which otherwise qualified individuals may pursue the practice of medicine. As a guiding principle, the AAP posited that although there are some universal technical skills that all students should master, not every skill is needed for all graduates. The specific field of medicine that the graduate will pursue in their residency training will dictated the technical skills needed. Specific fields require specific skills.

Depending on the specific disability, some students will not be well suited for certain medical specialties. Students who are unable to perform specific technical skills should be advised not only before matriculation on those areas of study that may be inaccessible, but also during their time as a medical student. Certain disabilities will prevent the mastery of technical skills, with or without reasonable accommodations,

needed in certainly specialties. The AAP (1993) also recommended that medical schools adopt written policies on admitting students with disabilities and to monitor changes in technology. Advances in technology may provide accommodation opportunities for students with disabilities to master technical standards that were previously not possible.

The AAP (1993) offered six specific recommendations to help guide admissions offices in assisting individuals with disabilities:

1. An individual who is otherwise qualified will not be denied admission based solely upon physical and psychological characteristics.
2. Students with disabilities are to meet the same requirements, with accommodations as needed, as their peers who are non-disabled.
3. Students with disabilities should be held to the same fundamental standards as their peers without disabilities. These fundamental standards, relating to cognitive, emotional, and technical skill, may be met with reasonable accommodations.
4. Reasonable accommodations should be made so that students may be assisted in learning and performing the fundamental standards so that those accommodations do not fundamentally alter the essential function of the medical school or significantly affect the rights of other students.
5. The cost of reasonable accommodations should be borne by the medical school while utilizing any potential sources of funding (federal and state agencies).
6. Any potential student may appeal to a committee of the medical school if the student believes their application did not receive proper consideration due to impairments or disability.

The AAP (1993) also addressed the five core abilities and skills addressed in the 1993 AAMC document (observation; communication; motor; conceptual, integrative, and quantitative; and behavioral or social). While supporting the importance of those five core skills and abilities, the AAP endorsed that medical degree candidate's right to demonstrate competence using both traditional and alternative methods. That is, the ways in which medical student demonstrate competence in the five core skills will vary and students with disabilities may utilize reasonable accommodations in mastery of the core skills and abilities.

The final section of the AAP (1993) report included recommendations on creating an environment and providing facilities that can properly allow for individuals with disabilities to learn and study. In order to create these environments, the AAP recommended that medical schools consult with individuals with disabilities for advice on addressing their needs. The medical school should create environments that allow for appropriate learning and provide opportunities for the student to demonstrate the knowledge and skills that students have mastered. Perhaps as a means to address the ambiguously discussed reasonable accommodations in the 1993 AAMC guidelines, the AAP provided examples of reasonable accommodations that may be utilized in the creation of a more hospitable environment. Some examples cited by the AAP include: ensuring the accessibility of learning settings (laboratories, clinical environments, and laboratories), the modification of environments and facilities for safety, providing furnishings and furniture appropriate to students with disabilities, and the modification of equipment utilized for learning. Interestingly, the recommendations go beyond creating a more welcoming physical environment. The AAP also recommended making student,

faculty, and staff aware of efforts to create a more accessible environment to those with disabilities. The AAP stated that an increased awareness will create a better understanding of the efforts to create an unrestricted environment and reduce misunderstandings and negative bias.

Recall that in 1982 Moore-West and Heath found that only 0.23% of all medical students had a physical disability between 1975 and 1980. Unfortunately there are no studies that attempted to ascertain the number of individuals who were physically disabled in medical school prior to implementation of the Rehabilitation Act of 1973; we simply do not have any available figures to compare pre- and post-implementation of the Rehabilitation Act. However, a second study, published in 1996, did seek to determine the number of individuals in medical school who had physical disabilities.

A questionnaire was sent to the deans of student affairs at the existing medical schools in the United States and Puerto Rico to determine the number of graduating medical students between the years 1987 through 1990 who have physical disabilities. Of the 128 existing medical schools at the time, 67 schools completed the survey. Wu et al. (1996) defined physical disability as a congenital disease, acquired illness, or trauma that has resulted in a physical limitation lasting for at least a one-year period. Emotional and cognitive disorders as well as drug and alcohol related impairments were excluded from the definition of physical disability utilized in this particular study. Only 0.19% of individuals in medical school were found to have a physical disability. The authors acknowledged that the number of individuals with physical disability is likely underreported due to an inconsistent record keeping practices by medical schools and that there are physical disabilities that may be unobservable to a third party. It is interesting

to note that although still less than 1%, the relative percentage dropped from 0.23% (Moore-West & Heath, 1982) to 0.19% (Wu et al., 1996).

As indicated above, the relative percentage of individuals with physical disabilities may actually be more than what has been reported, especially among individuals with non-visible physical disabilities. Prior research suggests that students may be reluctant to disclose their disability and seek support from university disability support service offices for the following reasons: a desire for self-sufficiency, avoiding the stigma associated with disability, prior negative experiences with faculty, and a negative perception of the usefulness and quality of services offered (Marshak, Van Weiren, Raeke Ferrell, Swiss, & Dugan, 2010). Because admission to medical school is competitive, individuals may not disclose their disability, if possible, to avoid not being admitted. For the 2015-2016 academic year, 781,602 applications were submitted by 52,550 students and of those students, only 20,631 matriculated to U.S. medical schools (AAMC, 2015). Potential medical students may believe that medical schools would be reticent to admit students with physical disabilities. The stigma associated with disability among those within the healthcare field may be a root cause of some reluctance to disclose a disability to the university (Byron, Cockshott, Brownett, & Rawkalawan, 2005).

Although the 1996 study by Wu and colleagues examined enrollments in years prior to the ADA of 1990, it could be expected medical schools, in an effort to comply with the Rehabilitation Act of 1973, would have admitted a higher percentage of individuals with physical disabilities. Again, since the relative enrollment percentages of those individuals with physical disabilities have declined, it is necessary to explore the

reasons for this phenomenon. The experiences of students, which this study is designed to capture, can provide a valuable resource to medical schools attempting to increase the numbers of students with physical disabilities enrolled in medical school.

Updated technical standards. In 1998, the AAMC published a report as part of a project to develop medical school objectives. This report was an attempt to respond to calls from observers that medical students are unprepared to meet the changing expectations of society. The Medical School Objectives Project (MSOP) addressed the development of a consensus within the medical education community on the attributes that medical students should master by the time of graduation. To respond to every changing societal needs and scientific developments, the MSOP (1998) detailed a set of goals and objectives to be used as a guide to medical schools in the development and implementation of learning objectives for their own educational programs. These objectives are intended to enable physicians to meet individual and societal needs of society. The authors of the MSOP report noted the changing needs of society on what is expected of physicians.

Increasingly, society expects the physician to equally attend to all aspects of health care, whereas in the past, the physician primarily focused on curing disease, often ignoring other aspects of health. Consequently, medical schools previously focused on preparing physicians to cure disease. However, new expectations now require physicians to master new skills and attributes. The MSOP (1998) report included the following attributes to be mastered: physicians must be altruistic, knowledgeable, skillful, and dutiful. The MSOP report also included a set of learning objectives that are recommended to be included in medical school curriculums as a means to help the

students master those attributes. Although the learning objectives are intentionally broad in scope and general in nature, we certainly see an attempt to go beyond simply curing disease to considerations of total health care. The attributes listed by the MSOP are an attempt to train future physicians to be more responsive to societal needs.

A third study, published in 2010 by Moutsiakis and Polisoto, sought to estimate the prevalence of students with physical disabilities graduating from medical schools using similar methods to previous studies (Moore-Heath & West, 1982; Wu et al., 1996). The definition of disability adopted for this study was the same that had been used by Wu et al. (1996); namely, physical disability was defined as a congenital disease, acquired illness, or trauma that left a person with significant physical limitation for at least a one year period.

The dean of student affairs was sent a questionnaire at every medical school in the United States. The questionnaire requested that information on the numbers of medical students with physical disabilities who graduated between 2002 and 2005. Of the 123 medical schools, 51 schools responded to the survey. However, of those 51 schools that responded, only 40 provided data used in the study. The 11 schools excluded from the study were not able to provide data for the time period requested. This research represented the first study of its kind to estimate the number of students with physical disabilities who have graduated medical school since the passage of the ADA in 1990. Between 2002 and 2005, it was estimated that 0.15% of all individuals graduating medical school had a disability. It is important to note here that the data of only 40 schools, out of 123, were used in this study. This low participation rate may suggest that medical schools had not collected information that would identify their students as having

a physical disability. Given the stigma that students associate with disability, this would be unsurprising (Byron et al., 2005). This low institutional response rate may also mean that the actual percentage of individuals in medical school who have physical disabilities may be greater than what is reported. Students may opt to not disclose a physical disability for fear that it may be perceived as a weakness (Manders, 2006).

Technical standards, accommodations, and the courts. Although early court rulings indicated that medical schools must comply with disability legislation, and provide reasonable accommodation, it was established in *Wayne v. Tufts University School of Medicine* (1991/1992), *Ohio Civil Rights Commission vs. Case Western University* (1996), *Kaltenberger vs. Ohio College of Podiatric Medicine* (1998), and *McCulley vs. The University of Kansas School of Medicine* (2012), that medical schools may determine the proper assessment of their students, based upon technical standards (Zazove et al., 2016). Furthermore, medical colleges may prohibit reasonable accommodations if those accommodations fundamentally alter the nature of the educational program (Zazove et al., 2016).

However, with *Argenyi vs. Creighton* (2013) and *Featherstone vs. Pacific Northwest University of Health Sciences* (2014) the court ruled that medical schools, because of the Rehabilitation Act and ADA, must provide reasonable auxiliary aids and services to students to allow for access and equal opportunity (Zazove et al., 2016). It was later determined in *Palmer College of Chiropractic v. Davenport Civil Rights Commission* (2014) that schools cannot apply a standard of acceptable academic practices because new approaches and technology may provide reasonable accommodations, which had not previously existed (Zazove et al. 2016).

Within federal disability legislation it should be noted that the definition of disability has changed, perhaps signaling how society perceives disability. Table 1 details how disability is defined within federal disability legislation, as well as the 2006 United Nations Treaty, whose definition of disability was adopted for use in this study. The Rehabilitation Act refers to individuals as handicapped, which focuses on individual impairment. However, the ADA of 1990 refers to disability as an impairment that substantially limits major life activities, a record of impairment, or a perception having an impairment. The Americans with Disabilities Act Amendments Act of 2008 (ADAAA) retains the definition of disability contained in the ADA yet also provides explanation on what constitutes major life activities, major bodily functions, and perception of being regarded as having an impairment. The 2006 UN Treaty includes language that situates disability with the context of society. An individual with disability is one who has limitations and it is the interaction of those impairments with the environment that prohibits their full participation in society.

Table 1

Definitions of Disability

Source		Disability Defined
Rehabilitation Act of 1973	§7(6)	The term “handicapped individual” means any individual who (A) has a physical or mental disability which for such individual constitutes or results in substantial handicap to employment and (B) can reasonably be expected to benefit in terms of employability from vocational rehabilitation services provided pursuant to title I and III of this Act
Americans with Disabilities Act of 1990	§3(2)	The term “disability” means, with respect to an individual, (A) a physical or mental impairment that substantially limits one or more of the major life activities of such individual; (B) a record of such impairment; or (C) being regarded as having such an impairment
UN Treaty – Convention on the Rights of Persons with Disabilities 2006	Article 1, Purpose	Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others
ADA Amendments Act of 2008	§12102 (2A)	Retains the language of the ADA of 1990, but also defines major life activities to include, but are not limited to: caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working
	§12102 (2B)	Major bodily functions include, but are not limited to: functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions
	§12102 (3A)	An individual meets the requirement of “being regarded as having such an impairment” if the individual establishes that he or she has been subjected to an action prohibited under this chapter because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity

Despite the more recent court rulings indicating the medical colleges must provide reasonable accommodation and follow the Rehabilitation Act and ADA, it is

readily apparent that the percentage of individuals with physical disabilities graduating from medical school has been in decline. This decline is apparent when considering that between 1975 and 1980 only 0.23% of medical school graduate class had a physical disability (Moore-West & Heath, 1982) compared to 0.19% of students between 1987 and 1990 (Wu et al., 1996) and finally 0.15% between 2002 and 2005 (Moutsiakis & Polisoto, 2010). Despite the passage of the ADA in 1990, proportionally fewer medical students with physical disabilities are graduating than before. What remains unknown is what the student with disability experienced during medical school that allowed them to be successful and what challenges they faced while in medical school.

It has been intended through federal disability legislation that individuals with disabilities would be afforded the same rights and privileges as every other citizen. Yet, statements by the AAMC, in particular those documents produced after the enactment of the Rehabilitation Act of 1973 and the ADA of 1990, have seemingly restricted access to medical school for individuals with physical disabilities. These AAMC statements, the 1979 final report of the Special Advisory Panel on Technical Standards for Medical School Admission and the 1993 document, *Americans with Disabilities Act (ADA) and the Disabled Student in Medical School: Guidelines for Medical Schools*, emphasized the importance of the technical standards that medical students must master, effectively creating structural barriers. Although in 1998 the MSOP detailed some of the non-technical skills required to practice medicine, such as altruism and duty, the report still maintained the mastery of technical skills as a requirement. Research that examined medical school attendance of individuals with physical disabilities demonstrates that federal disability legislation has not helped. In actuality, the relative percentage of

individuals in medical school with physical disabilities has decreased from the first study in 1982 to the last in 2010 (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996). The AAMC statements appear to have not assisted medical schools in admitting students with physical disabilities; rather the opposite seems to be true, that medical schools formalized creation of barriers to restrict access for individuals with disabilities. Figure 1 shows a timeline of federal disability legislation, with responses from the AAMC and AAP.

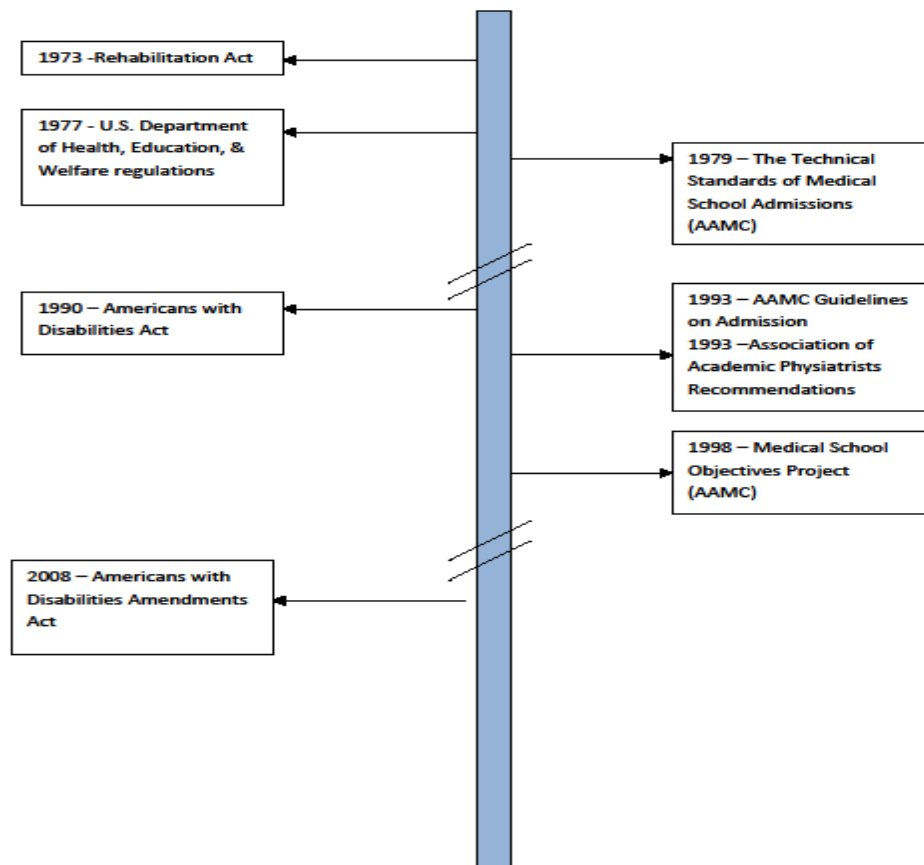


Figure 1. Timeline of federal disability legislation, AAMC and AAP response.

However, the MSOP, with the inclusion of non-technical standards expected of medical students, as well as more recent court cases which have provided some much needed clarity and strength to the Rehabilitation Act, ADA and the ADAAMA, there

appears to be a shift in how disability is perceived by those who are non-disabled. There is a noted shift in the language of legislation from the time of the Rehabilitation Act to the ADA. This new language contextualizes disability as a societal problem, rather than a problem of the individual with impairment.

Undifferentiated Graduate

Within medical education, there has been perhaps no greater obstacle to individuals with physical disability enrolling in medical school than the concept of the undifferentiated graduate. This concept is certainly not a new one. In 1950, a group of prominent heart surgeons, who formed the committee on undergraduate education, issued a report to the American Surgical Association of the Committee on Undergraduate Medicine. Within this report, it was stated that the goal of medical education is to give the student a comprehensive knowledge of man and his diseases and to train the student to enter “without handicap,” any and all of fields of medicine (Committee on Undergraduate Education, 1950, p. 524). The student should, through their undergraduate medical education, develop a general competence for all of medicine. It is this reference to general competence that appears to be the source of the context of the undifferentiated graduate (Reichgott, 1996). The 1950 Surgical Association Report, combined with the 1979 AAMC Report, helped to create an environment that was unwelcoming to individuals with physical disabilities (Reichgott, 1996).

Despite what has been written and what has already been uncovered about the development of technical standards and what is understood regarding the definition of the undifferentiated graduate, there are some members within the medical community, who have opposing views regarding the role of disabled students in medical school. Reichgott

(1996) wondered how the authors of the 1950 Surgical Association Report intended for “without handicap” to be interpreted (p. 524). Given the relatively small number of individuals with physical disabilities who do attend medical school, it would appear that medical schools have interpreted “without handicap” to mean an exclusion of individuals with impairments that may preclude them from becoming undifferentiated graduates. That is, physical impairments may prevent some students from the ability to perform all of the medical procedures required to complete academic requirements. Reichgott (1996) further observed that medical schools have responded to the call to provide a curriculum leading to general competence which has contributed to graduating undifferentiated graduates. Students who successfully complete the medical school curriculum are fully expected to be able to enter any medical specialty. Because such a small percentage of individuals in medical school have physical disabilities, Reichgott (1996) argued that the medical education community has applied a narrow interpretation to the concept of the undifferentiated graduate. The interpretation assumes that it is incumbent upon the student to be free of handicap, and thus be able to practice any and all medical specialty upon graduation (Reichgott, 1996).

Reichgott (1996), who has perhaps been the strongest opponent of the narrowly interpreted concept of the undifferentiated graduate, recognized that although the essential functions of the medical student and practicing physician are not mutually exclusive, they are not necessarily the same. The fundamental knowledge and skills that medical students are expected to master are intentionally broad (Reichgott, 1996). Students are required to acquire information about the patient, interpret that information, and ultimately they need to be able to integrate that information in order to produce a

clinical judgment (Reichgott, 1996). The practicing physician on the other hand, while still developing new skills and knowledge, typically has a more narrow focus (Reichgott, 1996). Physicians are not normally concerned with knowing all of medicine; certainly not in the same way that medical student are. Physicians, who have now focused on one particular aspect of medicine, one specific specialty, seek to hone and develop those skills so that they specialize in one area (Reichgott, 1996).

The physician, by the very nature of their continued education and training, will not have the same level of equality of competence in all areas of medicine (Reichgott, 1996). For example, a physician who has practiced psychiatry for an extended period of time, and whose last experience in an operating room was as a third year medical student, is most likely not suited to perform surgery. Certainly, this observation is not to suggest that the physician is no longer competent, in fact the opposite is usually true; specialists, who have narrowly focused on one subspecialty, are typically the most respected and successful (Reichgott, 1996).

An understanding of how students with physical disabilities experience medical school may reveal much about the individual impact of the concept of the undifferentiated graduate. Do students with physical disabilities perceive the concept of the undifferentiated to be an obstacle to be overcome in their pursuit to completing medical school? Additionally, an exploration of the experiences of currently practicing physicians with physical disabilities should reveal much the process of how they choose their specific medical specialty.

Reasonable accommodations may be provided so long that those adjustments not fundamentally alter the nature of the program. Reichgott (1996) wondered if the

“fundamental nature” of medical education would truly be altered by allowing a medical student be excused from certain procedures provided that the student could provide the rationale and provide direction for the procedure (p. 727). It is reasonable to assume that accommodations can be made during the initial phase of the medical school curriculum, the didactic phase (Reichgott, 1996). However, it is during the clinical portion of the curriculum, during the third and fourth years, that accommodation challenges arise (Reichgott, 1996). It is during this latter phase that students are expected to take a “hands-on” approach and perform basic medical procedures, such as physical examinations, in a clinical setting. Physical examinations certainly require a level of dexterity and tactical sensory functioning, which to the medical student with physical disability may not be achievable (Reichgott, 1996).

Rather than focus on the “hands-on” aspect of medicine, Reichgott (1996) emphasized the cognitive aspects of the practice of medicine. Using the physical examination as an example, is it necessary for the medical student or physician to personally acquire the medical data? If the medical student is able to demonstrate knowledge through the successful integration and application of knowledge, is the student any less prepared to be a successful physician?

A 2003 study explored the opinions of medical students, residents, and attending physicians on the importance of technical standards for medical school admission and competencies required for graduation. This survey showed that the concept of the undifferentiated graduate is perhaps not widely supported (VanMatre, Nampiaparampil, Curry, & Kirschner, 2003). The researchers sent a survey to 2,930 individuals affiliated with Northwestern University’s Feinberg School of Medicine. The topics of the survey

included the application of technical standards to medical students with physical disabilities, the concept of the undifferentiated graduate, the relative importance of the skills expected of physicians, and forms of accommodation. Those who were sent surveys consisted of 1,905 attending physicians, 846 residents, and 179 third-year medical students. Of those sent a survey, there were 523 responses (18%). Of those who did respond, 362 were attending physicians, 132 were residents, and 29 were third year medical students.

Survey respondents generally disagreed with the concept of the undifferentiated graduate as a majority of individuals (69.8%) agreed that medical student graduates do not need to possess all of the technical skills needed to enter every specialty of medicine (VanMatre et al., 2003). Through this survey, physicians and physicians-in-training also provided some insight into the importance of skills needed to be a successful physician. A majority of respondents felt that disabilities affecting motor skills are less likely to hinder the practice medicine than those skills associated with observation and communication. Technical skills needed for observation and communication were reported as being more important than those skills that are strictly procedural. Furthermore, those who responded considered many of the skills emphasized in medical school to be not as important to the practicing physician as they are to the medical student. Additionally, respondents suggested that medical schools should reevaluate the emphasis that is placed on purely technical skills (VanMatre et al., 2003).

If the purpose of medical school is to prepare every graduate to be able to enter every specialty of medicine, then individuals with disabilities will be excluded (VanMatre et al., 2003). However, if the focus of medical education is changed so that

every student is provided a comprehensive exposure to all areas of medicine, so that each student may differentiate after graduation, then students with physical disabilities may realize full participation in medical education (VanMatre et al., 2003). The comments of survey participants in the 2003 study highlighted the potential benefits of training physicians with physical disabilities. Not only can more physicians with physical disabilities help to increase general societal acceptance, but respondents also acknowledged the enhanced care to individuals with disabilities that physicians with disabilities may be able to provide. Physicians with disabilities often saw their disability as a benefit in helping them to understand the experiences of their patients and to provide better care (VanMatre et al., 2003). In addition to an enhanced quality of care, providing opportunities for the training of individuals with physical disabilities will help the training of future physicians (VanMatre et al., 2003).

The Medical School Curriculum

Although there does exist some variability among the curricula of United States medical schools, some generalizations may be made. Typically, during the first two years of medical school, students will spend much of their time in the classroom and in the laboratory learning the basic sciences. During this time, students will also most likely take courses in that serve as a foundation to patient care and the art of medicine. Normally, at the conclusion of their basic science training, students must take Step 1 of the United States Medical Licensing Exam (USMLE). The USMLE Step 1 exam measures the students' understanding of and ability to apply basic science concepts to medicine. It is usual that upon completion of the first two years of medical school and a

successful Step 1 exam, the student will move into the final two years of study, which includes clinical experiences.

During the third year of medical school, students are expected to rotate through the fundamental areas of medicine. These rotations, or clerkships, expose the student to the areas of medicine, which typically include: Internal Medicine, Surgery, Psychiatry, Obstetrics/Gynecology, Pediatrics, Palliative Care, and Family Medicine/Geriatrics. While rotating, students typically become part of a medical team, consisting of the attending physician, residents, interns, and other students. During these clerkships, students are typically administered a National Board of Medical Examiners (NBME) subject examination. These NBME examinations provide a standardized assessment which measure learning specific to the particular clerkship.

The fourth year of medical school is similar to year three but more specialized. Usually, the fourth year rotations are referred to as electives; students typically select rotations in which they have an interest and would like to specialize. Students must also successfully USMLE Step 2 examination. This exam measures the ability of the student to apply medical knowledge and skills in the clinical setting.

The USMLE Step 2 examination has a clinical knowledge and clinical skills component. The clinical skills portion of this examination consists of a series of encounters with standardized patients, occurring over an eight-hour period. Students are required to take a history, perform a physical examination, determine differential diagnoses, and communicate their findings to the patient and colleagues. Students are thus expected to apply their medical knowledge and skills in a clinical setting.

Upon completing medical school, students still must complete a residency, which is typically three to five years depending on the medical specialty. During the fourth year of medical school, students apply and interview for residency programs. It is during the residency that students continue their education in a specific area of medicine. Whereas medical school is considered undergraduate medical education that provides a general education to all of medicine, it is the residency that is considered their graduate education. The following section will explore the experiences of a small number of individuals at crucial steps along the process of medical education, from pre-matriculation through medical school and residency.

Experiences of students with physical disabilities in medical school. Given that such a relatively small number of individuals with physical disabilities attend and graduate from medical school, it is not surprising to find anecdotes of difficulties with the admissions process. The story of Dr. Jim Post, a practicing physician, is an illustrative example of the example of the frustrations that students with physical disabilities may encounter when trying to enter medical school. Post, who earned honors as an undergraduate student in a pre-medical program, in additions to earning high scores on the Medical College Admissions Test (MCAT), appeared to be an ideal candidate at any medical college, especially within his home state of Pennsylvania (George, 1995). At the age of 14, during a diving accident, Post sustained damage to his spinal column and after a year of physical rehabilitation and cervical fusions, now has quadriplegia. Post has limited hand and head movements and utilizes a wheelchair for mobility.

Post described the harsh treatment he received at the hands of medical schools, who, he says, saw his wheelchair and decided that he could not be taught medicine

(George, 1995). Post believed that Temple University, in Philadelphia, might be a good option for him. Temple had admitted Dr. Hartman, currently a child psychiatrist, in the 1970s. Hartman is blind. However, Temple was unwilling to accept Post into their medical program. Ronald Tuma, the then assistant dean of admissions, told Post that Temple was not ready to make the same accommodations that had been made to Hartman (George, 1995). According to Tuma, the accommodations made previously were determined not to be feasible (George, 1995). Tuma further commented that a key responsibility of being a physician is to handle patients and that Post would be unable to perform some of the duties required: palpate, take vital signs, or serve in emergency room or surgery rotations (George, 1995). The decision was not an easy one, but one that according to Tuma, was necessary to ensure that all students meet the level of skill expected of physicians (George, 1995).

Post, after meeting Dr. Herbert Schaumburg, a physician with post-polio disability, applied and was accepted at Albert Einstein Medical College of Yeshiva University, where Schaumburg was the chair of the neurology department (George, 1995). Albert Einstein Medical College made the necessary accommodations, which allowed Post to be successful, even earning honors grades in many courses (George, 1995). The challenges that Post overcame in gaining acceptance into medical school are fairly well documented. His story serves as an excellent example of the discriminating attitudes that exist within the medical education community. Post, finally gaining acceptance to medical school, and offered accommodations, demonstrated the ability to successfully complete medical school. Further documenting the medical school

experiences of individuals with physical disabilities will enrich our understanding of the challenges these students face.

Although not specific to the case of Post, a 1981 commentary written by Hartman and Hartman addressed some of the issues raised by Tuma in admitting a student with physical disabilities to medical school. Hartman and Hartman (1981) identified three essential questions that admissions committees consider when reviewing the application of an individual with a disability to medical school: the concept of the undifferentiated graduate, the cost of education, and curricular standards. The authors wondered if the idea of the undifferentiated graduate, that every graduating medical student should possess the same skill, knowledge, and abilities, needed to enter any medical specialty, is a realistic goal of medical education. It is perhaps unreasonable to assume that every student is suited for every area of medicine upon graduation. Students have unique personality traits and interests that may just be just as limiting as any physical disability (Hartman & Hartman, 1981). For example, a student who is uncomfortable with making split second decisions may be ill-suited to practice emergency medicine.

Additionally, the medical school curriculum may not, in actuality, be configured to produce the undifferentiated graduate. Students often decide early on, perhaps even before matriculation, on the area of medicine for specialization, and pursue a narrow focus during their four years of undergraduate medical education (Meier, 1993). Students usually have a 12-month period in which he or she chooses clinical electives. At this point, typically during the 4th and final year of school, the student chooses electives based on upon personal interest. Students may choose to focus on one specialty of medicine in preparation of their post-graduation residency placement.

During the 3rd year of medical school, students typically enroll in the required medical specialties to complete their clerkship curricular requirements. Students may choose to only complete those clinical rotations required during the 3rd year. In a way, students may have already specialized in one specialty, even before their residency training (Hartman & Hartman, 1981). Hartman and Hartman (1981) argued that the undifferentiated graduate is not one who could enter any medical specialty, but one who has a sufficient understanding of the breadth of medicine in order to make a decision on the most appropriate medical specialty to pursue. Despite this argument by Hartman and Hartman (1981), students with physical disabilities are still underrepresented in medical school. As this study seeks to explore the challenges and barriers that occur to students with physical disabilities, it will be interesting to explore the concept of the undifferentiated graduate from the perspective of the individual student.

Another consideration for admission committees is the cost associated with educating an individual with physical disabilities. Admission committees may assume the cost to educate an individual with disabilities to be more than students without disability and this additional cost to be problematic. Dr. Hartman (in Hartman & Hartman, 1981), who is blind, did not feel that the school incurred any additional cost upon his graduation. He further wrote that professors did spend extra time with him, helping to clarify concepts, especially those in which sight would have been the primary means to obtain information, but that no one professor was overburdened. Additionally, alternative modes of instruction were not necessarily costly (Hartman & Hartman, 1981). Specialized assistive technology, which would most likely be needed throughout the medical career of the individual, as a student and physician, could be purchased by the

student, thereby shifting the financial responsibility away from the school (Hartman & Hartman, 1981). Despite some evidence that assistive technology has assisted students in completing medical school, there has yet to be an extensive study on the ways in which students with physical disabilities achieved success in school, and this focus is beyond the scope of the current study.

Admissions committees may also be fearful that admitting individuals with physical disabilities to medical school with somehow lower the standards that the student must meet in order to graduate. Meier (1993) commented that all applicants, those with disabilities and those without, should only be considered on the basis of their academic credentials. Again, the experiences of Dr. Hartman demonstrated that there was no need to exempt students with disabilities from curricular requirements. He met all curricular requirements, often by developing, along with faculty members, alternative modes of learning. He explained that individuals, who are blind, such as himself, rely on tactile and auditory senses in place of sight. It should not be assumed that alternative methods of learning are substandard to those normally employed only because those techniques are different (Hartman & Hartman, 1981).

In further opposition to the concept of the undifferentiated graduate, Meier (1993) wondered why medical students are expected to be able to enter all medical specialties when new physicians train in one specific area of medicine. He suggested that the qualified applicant with disability be admitted with the knowledge that he or she will not have the motor or sensory abilities needed to develop competence in every area of medicine. Should an otherwise qualified applicant be denied admission if the student cannot perform the essential functions of all areas of medicine (Meier, 1993)? Not much

is known, from the student perspective, of the specific challenges and barriers to admission. Knowing more about the experiences of the student will increase our understanding of admissions practices.

Post-matriculation performance. The issues that students with physical disabilities experience in gaining admission to medical school are well documented. However, the performance of those students, once admitted, has not been extensively studied. The study of Moore-West and Heath (1982), which was perhaps the first study to look at the percentages of individuals with disabilities attending medical schools, also examined the academic performance of those students. Survey respondents revealed that very few problems were observed in either the academic or interpersonal realm for students with physical disabilities. Of the 72 students reported as having a physical disability, only five of those students did “poorly” or “very poorly” academically relatively to their peers without disability (Moore-West & Heath, 1982, p. 920). Additionally, 64 of the 72 students were reported as having done “well” or “very well” in the interpersonal realm (Moore-West & Heath, 1982, p. 920). In response to the challenges of admitting a student with physical disabilities, the need to provide extra emotional support was emphasized over academic support. Of those schools that did report a need to provide extra academic support, the majority identified a need to change faculty attitudes and perceptions of student performance. The authors supposed that students with physical disabilities are able to meet the academic and emotional workload of medical school.

A 2013 study by Teherani and Papadakis explored the performance and graduation rates of medical students with both physical and intellectual disabilities.

Looking at the approximately 3,000 students who matriculated into the University of California School of Medicine, San Francisco between 1987 and 2009, 59 students were identified as having a protected disability (as defined by the ADA). For statistical analysis, each of these students with disabilities was matched to three students without disability based on the following criteria: sex, age, and year of matriculation. Overall, students with protected disabilities performed well academically, graduated, and matched into residency programs (Teherani & Papadakis, 2013). The authors discovered that most students with physical disabilities did not perform as well on academic achievement measures including MCAT and USMLE Step 1 scores, and were less likely to graduate. However, the observed magnitude of difference was small. Additionally, the authors found that the 3rd year clinical clerkship performance of the students with protected disabilities, due to mental impairment, but not physical impairment, were below that of students without disabilities. An understanding of the experiences of former medical students with physical disabilities may reveal information about the comparisons offered by Teherani and Papadakis (2013). Although the magnitude of difference was small, why do students with physical disabilities perform less well on academic achievement measures and graduate at a lower rate than their student peers who are without disability?

Post-graduation/residency challenges and accommodations. Barriers still exist, post-graduation, to the rare student with physical disabilities who does gain admission to a medical school and successfully completes curricular requirements. Dr. Mehri Brown (1998), practicing psychiatrist, wrote about her experiences in medical school and the difficulties she experiences in the residency match process. Brown, who has cerebral palsy, successfully completed medical school with some minor scheduling

adjustments and, according to her, a determination to accept her procedural limitations and a willingness to adapt. Brown who found that she enjoyed her pediatric rotation, twice failed to match into a pediatric residency program. She acknowledged that not only is the residency match process competitive for everyone, but it presents additional challenges to those individuals who require the development of alternative strategies to successfully complete residency requirements.

Brown (1998) explained that her classmates initially expressed concerns over her ability to become a doctor, such as when during her first year of medical school, she could not perform a clean anatomical dissection. Once her classmates understood that Brown's reasons for wanting to be a doctor mirrored their own, the other students were more accepting. Her difficulty in performing a hands-on aspect of medicine, the anatomical dissection, and the subsequent accommodations made for her, perhaps highlight the balance that residency programs seek in training individuals with physical disabilities. A goal of those residency programs is to maximize the opportunities for the resident to be successful and at the same time maintain the rigor and integrity of the education program (Losh & Church, 1999).

Losh and Church (1999), acknowledged the unique perspectives that individuals with disabilities bring to patient care, explained that not managing resident illness and/or disability can be problematic both to the resident, and to others within the residency program. To that end, the authors acknowledged that an important aspect of the ADA is the development of explicit job descriptions and definitions of the essential job functions and requirements. As a means to perform the essential job duties, programs are required by the ADA to provide reasonable accommodations. Those accommodations may only

be denied if the accommodation would result in lowering or substantially changing a core program requirement.

Furthermore, defining essential job functions are beneficial in not only the selection of qualified residents, but also in developing accommodation plans for residents with disabilities. The work of Losh and Church (1999) demonstrated the importance of developing essential duties for residency programs. With proper planning, individuals with disabilities, some of which need accommodations, can be successful in residency programs.

The suggestion of Losh and Church (1999), that individuals with disabilities can be successful in residency program if properly accommodated, is echoed in an article by Shomaker (1999). Shomaker (1999) referred to three examples of case law demonstrating that a balance between accommodating the needs of the individual with disabilities and ensuring program quality can be achieved. In *Southeastern Community College v. Davis* (1979), the court ruled that the accommodations of individuals who are disabled is not required if the accommodations fundamentally alter the nature of the program and creates an undue financial or administrative hardship for the institution. In this particular case, a student who was deaf was denied admission to a nursing program. It was determined that the ability to hear was necessary in the clinical setting. In *Doherty vs. Southern College of Optometry* (1988), a student, who had a neurological condition, was unable to successfully complete a competency examination that required manual dexterity. The court ruled that institutions are not required to eliminate a course requirement so long as the requirement is necessary to demonstrate skills that are needed for the proper use of the degree to be awarded. In a third case, *Wynne v. Tufts University*

School of Medicine (1991/1992), a student with disabilities was denied accommodations. The court held that the deference would be afforded to the institution of academic decisions. Furthermore, the denial of accommodations by the institution was upheld. The court acknowledged that the school considered alternative means of accommodation, the cost of the accommodation, and the impact of the accommodation on the academic program.

Shomaker (1999) concluded that the three aforementioned court cases demonstrate that the three essential questions proposed by Losh and Church in 1999 (whether the individual is disabled, if the individual can be successful with or without accommodations, and if there are accommodations that would allow the individual to perform essential job duties) can be more easily addressed if the residency program had clearly defined the essential job duties. It is also essential that those essential job duties be communicated and explained to the residency candidate.

In a brief review of the remediation of residents who are physically impaired, Colaco and Fried (2012) observed that the changes that need to be made in order to accommodate residents with physical disabilities need to occur across the institution and residency program. A systematic review of procedures and practices, the development of appropriate technical standards and essential duties, and the proper training of medical students and employees, will help to create an environment hospitable to the resident with physical disabilities.

Losh and Church (1999) and Shomaker (1999) identified the importance of establishing the requirements needed to be successful in residency programs. However, little information is available regarding the experiences of medical students with physical

disabilities in residency programs who have received accommodations. The purpose of this study is to reveal how former students with physical disabilities experienced their residency programs. An understanding of how accommodations were utilized will help our understanding of the residency environment in which students with physical disabilities are expected to learn. Colaco and Fried (2012) identified some of the changes that are necessary, yet little information exists from the perspectives of students with physical disabilities.

The previous section, which provided an overarching review of the medical school experiences of selected individuals with physical disabilities, perhaps demonstrates the confluence of influences that affect how those individuals have experienced medical education. The experiences of Dr. Post (George, 1995) demonstrate how difficult it was for one person, someone who certainly had the necessary credentials, to gain acceptance to medical school. The challenges that Dr. Post experienced are due in large part to the concept of the undifferentiated graduate, the idea that every medical student be able to enter any medical specialty upon graduation. In a commentary, Hartman and Hartman (1981) challenged this concept. The authors contend that graduating medical students should possess an understanding of the breadth of medicine in order to make a decision on which area of medicine to pursue, rather than have the ability to practice each and every medical specialty post-graduation.

Dr. Hartman also challenged the notion that students with physical disabilities need to be excluded from certain curricular requirements, as he successfully completed all requirements, while, at times, utilize alternative methods of knowledge acquisitions. He also argued that we need not assume that alternative methods should be seen as sub-

standard or as a means to circumvent curricular requirements (Hartman & Hartman, 1981).

Once students with physical disabilities are admitted to medical school, we have some information on their performance. Moore-West and Health (1982) found that students with physical disabilities met the academic and emotional challenges of medical school. Furthermore, students with physical disabilities, in the clinical portion of their medical education, performed well academically, graduated and matched into residency programs (Teherani & Papadakis, 2013).

The experiences of Dr. Brown (1998) suggest that even upon graduation newly minted MDs with physical disabilities still encounter obstacles. Brown, who has cerebral palsy, twice failed to match into a pediatrics residency program, which at the time, was her preferred area of interest (Brown, 1998). Brown acknowledged that despite her best efforts, she was excluded from her preferred residency.

Benefits to Admitting Students with Physical Disabilities

A number of authors have highlighted the positives associated with admitting and educating students with disabilities. Respondents to the survey developed by Moore-West and Heath (1982) felt that admitting students with physical disabilities help provide class diversity, provide positive role models for classmates and patients, and help to raise awareness for other students and faculty members about the abilities of students who are disabled. Creating a higher level of awareness is an oft-referenced benefit. Students with physical disabilities have the potential to help classmates develop a better understanding of what it means to have a disability or chronic illness (Hartman & Hartman, 1981).

Students, having been exposed to the abilities of individuals with disabilities, may have higher expectations of the abilities of their patients (Hartman & Hartman, 1981).

There are also potential benefits to patient care. It can be argued that students with physical disabilities are better suited to interact with patients as the student has personally experienced similar circumstances (Meier, 1993). Wainapel (1999) noted that the foundation of medical care is the relationship between the doctor and patient. This relationship may be enhanced when the physician has lived both roles, that as a patient and as a doctor (Wainapel, 1999). Physicians with disabilities may have genuine empathy towards patients with chronic illness or impairments (Meier, 1993; Wainapel, 1999). Patients and physicians with disabilities may have faced similar struggles, especially students with physical disabilities completing the academic rigors of medical school. Meier (1993) stated that students might have developed superior communication skills in order to navigate and be successful in a society with structural and attitudinal barriers to those with physical disabilities. The ability to competently communicate with patients is a skill that is needed to be an effective physician.

Dr. Hartman, a psychiatrist who is blind, explained that some of his patients prefer his care to someone with functional sight. These patients feel more comfortable discussing themselves knowing that they were not being watched (Hartman & Hartman, 2008). Additionally some patients who were also sightless preferred to see Dr. Hartman as they felt he could better understand and relate to a shared lived experience (Hartman & Hartman, 2008). It may be that students (future physicians) who have physical disabilities may be able to more effectively meet the needs of an increasingly diverse patient population (Hartman & Hartman, 1981; Moutsiakis & Polisoto, 2010). Physicians

with physical disabilities may have an extra sensitivity to patients; empathy is an increasingly important skill as physicians spend less time with patients than in the past (Corbet & Madorsky, 1991).

In addition to the potential benefit to patients, colleagues of students with physical disabilities are better able to understand the personal aspect of disabilities, and are thus able to provide better care to patients with physical disabilities (Zazove et al., 2016). Medical students who have personal interactions with classmates with disabilities have an opportunity to gain a new awareness of individuals with disability. Later, when those same students with disability enter practice as physicians, they demonstrate to their communities that an individual with a disability is able to be contributing member of society, even at the highest professional levels (Zazove et al., 2016).

Disability Models

Shakespeare (1996) noted two approaches in understanding individuals with disabilities. The first approach sees disability as caused by impairment, in this case using a deficit model. Individuals are disabled because their bodies are broken, they look or act differently, or they are unable to be fully functioning members of society (Shakespeare, 1996). Shakespeare also stated that this approach assumes that those who are not disabled to be normal, whereas individuals with disabilities could never reach that standard of normality. This model or approach is often referred to as the medical model of disability. The second approach, as identified by Shakespeare (1996), regards disability as the outcome of social processes. This approach, often referred to as the

social model of disability, focuses on the relationship between individuals with impairment and a discriminating society (Shakespeare, 1996).

Just as Shakespeare (1996) had identified a deficit approach to disability within his two-approach classification, Oliver (1990) similarly recognized an approach that held disability as synonymous with impairment. This approach, in which disability is caused by impairment, is known as the individual model of disability (Oliver, 1996). The individual model of disability is similar to the medical model in that both models can be considered deficit models. For Oliver (1990), the individual model situates the “problem” of disability within the individual (Individual and Social Models, para. 1). Disability is the result of limitations of the individual that are caused by bodily limitations, both physical and cognitive (Oliver, 1990). Disability, often seen as a personal tragedy, is the result of some terrible medical condition that has severely limited the individual’s capacity physically and psychologically (Oliver, 1990).

Pfeiffer (2002) offered another perspective. In writing about the philosophical foundations of disability studies, Pfeiffer observed that, until only recently, a deficit model was the dominant model in the field of the study of disabilities, but not in disability studies. To make sense of the distinction between disability studies and the study of disabilities, it is perhaps helpful to think of disability studies as research done by those within the field of disabilities and the study of disabilities as research conducted by those outside of the field of disability. In the latter case, those studying disabilities as a factor or variable may be approaching such study from a number of perspectives (e.g., medical, psychological, sociological). Alternatively, disability studies focuses on the ways in which the society treats the individual with disability.

Pfeiffer (2002) identified the deficit model in three variations: the medical model, the rehabilitation model, and the special education model. Although others (Oliver, 1990; Shakespeare, 1996) have categorized the medical, rehabilitation, and special education models as components of the individual model, Pfeiffer (2002) emphasized the deficits that are assumed within. Each of these models assumes a deficit that needs to be fixed or corrected in order for the individual to become “normal” (Pfeiffer, 2002, *The Deficit Model*, para. 2). The medical model posits that the individual has a medical or health condition that needs to be cured. Within the rehabilitation model, the individual’s employment condition needs to be reconstructed or improved and the special education model recognizes a learning condition that needs to be corrected so that the individual may learn in the same manner as an individual without disability (Pfeiffer, 2002).

Pfeiffer (2002) recognized that normal is a value based perspective and that there is truly nothing inherent that may keep an individual from being normal. Pfeiffer described a disability paradigm, which presupposes that the identification of an individual with a disability is an ideological act. The disability paradigm, according to Pfeiffer (2002), makes it clear that individuals with disabilities must make the important decisions about themselves. Furthermore, social change is necessary to end discrimination and it is society that must change, not the individual with disability (Pfeiffer, 2002). Pfeiffer recognized the disability paradigm as containing nine versions: social construction version as found in the United States, the UK social model, the impairment version, the oppressed minority (political) version, the independent living version, the post-modern (also referred to as post-structuralism, humanistic, experiential, existentialist) version, the continuum version, the human variation version, and the discrimination version. Each

version of the disability paradigm serves a useful purpose in how one understands disability. However, as I am utilizing a social constructionist approach to this study, I will focus our attention on the social model of disability as found in the UK.

Pfeiffer (2002) saw the social model of disability (as found in the UK) as a component of the disability paradigm. The social model recognizes that the way that society is organized prevents individuals with disabilities from full participation and access. The history of the development of the social model illustrates how the focus of disability has shifted from the individual to society.

Development of the social model. Although numerous models are offered to describe disability, the dominant model has been the individual model (Pfeiffer, 2002). The individual model attributes the problems of disability from the perspective of the impaired individual. It is through impairment, those physical and psychological limitations, that an individual is considered disabled (Oliver, 1990). Oliver (1990) noted that the medicalization of disability is a central component of the individual model of disability. That is, medical intervention is necessary to treat disability in order to return the disabled person to a state as normal as possible (Oliver, 1990). As such, disability is seen as synonymous with illness (Oliver, 1990).

Similarly, Pfeiffer (2002) noted that the dominant model regarding disability studies was, until very recently, a deficit model. The deficit model includes three sub-models, including the medical model, the rehabilitation model related to employment, and the special education model. With an emphasis on rehabilitation and medicalization, the individual model aligns closely with the deficit model. Within the deficit model, the disability must be corrected, wherever the deficit occurs, for example, health (medical

model), an employment condition (rehabilitation model), or a learning condition (special education model) in order for the individual to be considered normal (Pfeiffer, 2002). To the proponent of the deficit model, the individual with a disability must be fixed, cured, corrected, or rehabilitated (Pfeiffer, 2002).

In reaction to the individual/deficit models of disability, the social model was developed. The social model of disability was developed by activists in the Union of the Physically Disabled Against Segregation (UPIAS) in the 1970s (Shakespeare & Watson, 2002). At a meeting in 1975 to discuss the fundamental principles of disability, the UPIAS stated:

In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments, by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society. (p. 3)

Furthermore, the UPIAS noted the distinction between physical impairment (such as lacking all or part of a limb) and the social situation (e.g., the context in which contemporary society fails to include individuals with disabilities in social activities). The social model of disability, as presented by the UPIAS, regards individuals with disabilities as an oppressed social group, draws a distinction between impairment and oppression, and defines disability as social oppression (Shakespeare & Watson, 2002).

It is recognized that the publication of the *Fundamental Principles of Disability* by the UPIAS in 1976 was the starting point of the development of the social model of disability (Oliver, 2009). The UPIAS, whose membership is limited to individuals with disabilities, produced a profound statement that argued that impairment was not the

fundamental cause of disability, rather disability is the result of the ways in which society treats individuals with impairment (Oliver, 2009).

The UPIAS statement also draws a distinction between impairment and disability to further emphasize the social foundation of disability. Impairment was defined strictly from a physical perspective, such as lacking all or part of a limb or having a defective organ or mechanism of the body. Disability, on the other hand, was seen as the restrictions and disadvantages placed upon individuals with impairments by a society unwilling or unable to provide full inclusion. Thus, the UPIAS viewed physical disability as a form of social oppression. It is through an understanding of the root cause of disability, an oppressive society, which will allow for a greater exploration of the situational experiences of individuals with physical disabilities. Recognizing the connection between the discrimination of individuals with physical disabilities and societal practices will help to identify and eliminate those exclusionary practices (UPIAS, 1976). Moving from the individual/deficit model to the social model represented a meaningful shift in how the phenomenon of disability is understood. Individuals with disabilities, who advocated for the social model, did so in order to engage in a more positive process of self-identification while also emphasizing the importance of collective power (Shakespeare, 1996).

Opposition to the social model. The social model is not universally accepted and has its critics. Certainly, evidence exists, and has been explored here, which demonstrates the entrenched dominance of the individual model and its related models (medical, rehabilitation). Shakespeare and Watson (2002) go one step further and argue that the social model has outlived its usefulness. Rather than amend the social model,

they argued that the social model should be set aside to make way for a new model. Shakespeare and Watson (2002) offer three criticisms of the social model. First, impairment is removed from the construct of disability within the social model. This denial of difference is problematic. The authors argue that difference, as a result of impairments, is an important component to the personal experiences of those who have disabilities. Shakespeare and Watson (2002) argued that the type of impairment is relevant. For example, an individual will have a different experience if the impairment is congenital as opposed to acquired or if the impairment affects only appearance and not function. Not all impairments are the same; those differences have important impacts, both to the individual and to societal and structural environments.

Also, by denying the impact of impairment, society may de-emphasize impairment correction. Although some medical personnel strive to cure impairments at all cost, it is perhaps equally wrong to avoid all strategies of medical impairment reduction (Shakespeare & Watson, 2002). Shakespeare and Watson (2002) posited that if the social model was pushed to the extreme, it might not be seen as desirable to avoid impairment. Recognizing that no activist in practice would actually be unconcerned about road safety or vaccination programs, Shakespeare and Watson nevertheless acknowledge that there are some fringe groups who feel that having greater number of individuals with disabilities is not problematic and that it is not always necessary to avoid impairment. Shakespeare and Watson (2002) contend that social change and barrier removal should be a priority, yet attempts, if appropriate, at impairment prevention and improvement, can also be a goal. Bodily impairment and social barriers share in the cause of disability.

Second, the binary distinction between impairment, as an attribute of the body, and disability, as a social issue, is problematic. Shakespeare and Watson (2002) ask, “Where does impairment end and disability start?” (p. 17). The distinction between the two is not definitive. Although impairment can rightfully be seen as a cause of disability, disability in turn, may also exacerbate impairment. Even though not all impairment may be a contributing factor to disability, those impairments may still cause functional limitations. The removal of social barriers may not be enough to erase disability. Not every aspect of impairment is a result of a disabling society. Shakespeare and Watson (2002) further argued that disability is a complex and multifaceted concept; “It sits at the interaction of biology and society and of agency and structure” (p. 19). This comment by Shakespeare and Watson reveals the multitude of factors that encompass what it means to have a disability. With this study, I sought to gain an understanding on how individuals socially construct their disability, specifically within the environment of medical education. Although I utilized a social constructivist perspective, biologically caused limitations are another component to disability which, according to Shakespeare and Watson (2002), should not be discounted.

Shakespeare and Watson (2002) also recognized that individuals with disabilities often choose not to identify themselves as disabled, either in terms of the medical model or the social model. Some individuals do not identify with the disability movement, downplay any impairment, and seek access to mainstream society as anyone else would. Not only do some individuals prefer not to identify themselves as disabled, there are inherent issues with multiple identities. Although impairment is a part of what they are, other identities may be seen as more salient, such as gender, ethnicity, or sexuality.

Shakespeare and Watson (2002) attempted to demonstrate that identity is not constant and that some identities are emphasized over others, and that over time, those identities seen as primary may change. The authors further explained that primarily identifying an individual by their disability harkens to the medical model of disability. This study will help us to understand the ways in which individuals socially construct disability.

Expanded Conceptual Framework

Oliver (2009) began to rethink his own experiences with disability and impairment as a result of his engagement with the 1976 UPIAS statement. Accordingly, Oliver (1990) recognized that the UPIAS statement was the source of a fundamental shift in how disability is understood. Impairment was no longer seen as the primary cause of the social exclusion of disabled individuals; rather it was the way in which society responded to those individuals with impairment (Oliver, 1990). Oliver (2009) refined his thinking on the social model through his training of social workers and in the design and delivery of disability equality training. In his teachings, he attempted to show his students that society should be the target of professional interventions and practice, and not those individuals with impairments.

Within the British disability movement, the social model has been useful in two important ways. First, as a political strategy, the social model has helped to identify disabling characteristics of the environment so that these barriers may ultimately be removed (Shakespeare & Watson, 2002). The medical model focuses on a strategy of rehabilitation or the cure of illness, whereas the social model focuses on changing society. The ultimate goal is the creation of a society that promotes equal opportunities and accessibility.

Second, the social model allows individuals, who themselves have disabilities, to understand that the problem is not within themselves; rather the problem is with society (Shakespeare & Watson, 2002). Proponents of the social model claim that it is not individuals with disabilities, who need to change, instead change needs to be made at the societal level. Deficits are not rooted in bodily impairments; deficits derive from a social oppression that still exists in society. In many ways, understanding of disability through the social model has been liberating to individuals with disabilities. Individuals with disabilities can accept that they are not the problem; instead, the problem lies within a discrimination society.

Summary

Despite the Rehabilitation Act of 1973 and the ADA of 1990, individuals with physical disabilities continue to be underrepresented in medical school (Steinberg et al., 2010). The AAMC has issued statements in response to federal disability legislation in an attempt to provide enforceable standards and help medical colleges interpret the new laws (Schwartz, 2012). Despite these efforts of the AAMC, those statements have not had the effect of expanding medical school of individuals with physical disabilities; the enrollment of individuals with physical disabilities has continued to decline (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996).

Medical schools have adopted a narrow interpretation of the concept of the undifferentiated graduate, where each student is expected to be able to enter any medical specialty (Reichgott, 1996). In essence, students are expected to be able to enter any medical field “without handicap.” Through a review of the experiences of students with physical disabilities in medical school, we see that some students have been successful

despite this interpretation and we also understand that not every medical specialty is suitable for every student. However, evidence does exist that students with physical disabilities have much to offer the medical profession. Physicians with physical disabilities may provide higher levels of empathy and diversity within the profession, and may serve as positive role models (Meier, 1993; Wainapel, 1999).

Through an understanding of the disability models, we gain an understanding to the ways in which individuals are treated by society. There are two essential approaches to understanding the models of disability. There are the individual models and the social model (Shakespeare, 1996). The individual models assume that the individual with disability has a deficit that needs to be corrected and that the problem of disability is caused by impairment (Oliver, 1990). The social model, on the other hand, sees the problem of disability as a societal issue (Oliver, 1990). It is society which limits the full participation of individuals with disability (Oliver, 1990). Chapter 3 reviews the methods of this proposed study using the social model of disability as the conceptual framework.

CHAPTER 3: METHODOLOGY

Individuals with physical disabilities are an underrepresented population within U.S. medical colleges. Of the small number of individuals with physical disabilities who do enroll in medical school, we know little of their experiences (Brown, 1998; Corbet & Madorsky, 1991; George, 1995). Certainly, not much has been written about the experiences of individuals with physical disabilities from a first-person perspective. It is important to understand better how medical students with disability construct their understanding of their medical school experience in order to address areas in which medical schools could provide better accommodations to support success for these students and to determine how students might better navigate medical school.

From a social constructivist perspective, we may assume that no absolute reality exists. Thus, the reality that has been created by the individual, through social interactions and engagement with their environment (Berger & Luckmann, 1966), is the reality that is most worthy of study. Hence, the focus of this research is on the individual student experience.

Individuals with physical disabilities are not only a misunderstood group, but also a group that faces discrimination and continues to be undervalued within the medical community (Mercer & Pinder, 2000). Within medical education, disability is still often equated with inability (Wainapel, 1999). Thus, not only is little known about the personal experiences of individuals with physical disabilities, they are still discriminated against. This population, who has demonstrated the ability to add much to the medical community, has not been provided the appropriate opportunity to enroll in medical school. Therefore, the premise of this study is to understand how former students with

physical disabilities experience medical school. By understanding the experiences of these students, I hope that medical educators can begin to create more hospitable educational environments. Oliver (2009), whose social model of disability was utilized as the theoretical framework for this study, offered a critique of how disability research has failed individuals with disability. His critiques presented here, informed the methods of this study, so that the same mistakes are not repeated.

Theoretical Framework

Oliver (2009) promoted the social model of disability to address the ways in which the environment influences individual experience. Like Berger and Luckmann (1966), Oliver's (1990, 2009) work builds on the ways individuals are influenced by the social construction of reality. Reality is a social process and is formed through the interaction of individuals and their environment; the reality of everyday life is not only shared, but also constructed, with others (Berger & Luckmann, 1966). Individuals create their reality as they make sense of their experiences. This process of sensemaking, although a personal experience, is very much dependent on the ways in which the individual interacts with others (Weick, 1995).

In his model, Oliver (2009) first noted that disability research has failed to appropriately capture the experiences of individuals with disabilities. More specifically, first-person perspectives have not been accurately reflected in disability research (Oliver, 2009). Second, the information generated in disability research has not been useful in improving the day-to-day lives of individuals with disabilities; in particular, the research has not contributed to the policy-making process (Fowler, 2013). Third, research still emphasizes the individual model of disability where the *problem* of disability resides

within the individual. Outside of disability studies, the experiences of individuals with disabilities are still framed as either an impairment, welfare, or medical issue, instead of focusing on the social or political aspects of disability (Oliver, 2009). For these reasons, Oliver (2009) has argued that researchers outside of disability studies often alienate individuals with disabilities, from not only the perspective of the research product, but also the process of research.

Consequently, Oliver (2009) sought to establish a research agenda, which would be truly emancipatory. From this perspective, it is not enough to faithfully present the experiences of individuals with disabilities, even though it is important to give voice to those who have previously been denied that opportunity. Thus, Oliver (2009) suggested that in addition to faithfully capturing the experiences of individuals with disabilities, research must also be available and accessible to those attempting to improve their condition.

Oliver (1992) noted that although interpretive and constructivist paradigms advance the study of disability, they do not go far enough in changing the social situation of those with disabilities. Oliver (2009) detailed the importance of an emancipatory paradigm wherein the means of research would be substantially altered. This study seeks to implement aspects of the emancipatory paradigm as detailed by Mertens, Sullivan, and Stace (2011). Traditionally, the power relationship between research and the researched was lopsided. However, within the emancipatory paradigm, the researcher is to place their skills at the disposal of individuals with disabilities (Mertens et al., 2011). Principally, research within the emancipatory paradigm is intended to expose and change those structures, physical and societal, that are disabling (Mertens et al., 2011). The

value of research, from this perspective, is not to focus on deficits, but to focus on resolve and coping skills and to explore those contextual factors that either inhibit or facilitate engagement in society (Mertens et al., 2011).

An emancipation paradigm is similar to the participatory action model of research (Mertens et al., 2011; Savin-Baden & Major, 2013). I presented a forum via this study for former medical students with physical disabilities to share their experiences through medical school and into professional practice. It is my intention that this information be used to help inform and change current practices which have excluded individuals with physical disabilities. Oliver (1992) was critical of researchers who provide an account of the experiences of individuals with disabilities, yet do nothing to positively alter the social situation. Optimistically, this study sought to positively affect the lives of individuals with physical disabilities as they endeavor to attend medical school, complete a residency program and continue into professional practice. Although this study should not be considered action research, I do take an activist role. This study provides a description, through narrative methods, of what the participants have experienced. These experiences must first be revealed and understood before meaningful action may be taken. The data generated from this study, may be used to not only inform future research, but also to guide collective action.

Research Tradition

This study utilized qualitative research design (Riessman, 2008) techniques in order to address the fundamental research question: How do medical students with physical disabilities experience medical school? Qualitative research is appropriate when seeking to hear silenced voices, to empower individuals to “share their stories, hear their

voices, and minimize the power relationship that often exists between a researcher and the participants in a study” (Creswell, 2013, p. 48). The researcher’s role in this design is to hear what the participants say and to present those stories and perspectives. The relationship between researcher and participant is collaborative and based on a foundation of trust. Participants are equals of the researcher and should have the freedom and opportunity to share their personal stories, which reflect their individual experiences (Mertens et al., 2011).

Narrative methods. The narrative methods work of Riessman (2008) guided in the development of the methods used in this study. Although Riessman (2008) identified a number of reasons for the use of narrative research (remember, argue, justify, argue, persuade, engage, entertain, mislead), it is the ability of narrative research to mobilize others which may be most powerful to this study. Narratives allow for listeners, and eventually readers, to enter the participant’s point of view (Riessman, 2008). Clandinin and Connelly (2000) have stated that narrative inquire is the best way of representing and understanding human experience. Because I was primarily interested in the personal experiences of individuals with physical disabilities who have enrolled in medical school, narrative methods were an appropriate approach for this study as it allowed me to capture the participants’ voices and to allow their stories to help achieve active change in medical schools.

Chase (2011) explained that a narrative approach also provides opportunities for change and social justice. Furthermore, narrative researchers often recognize that their work may promote action leading to social change (Chase, 2011). It is through the collection and sharing of narratives that change may be facilitated (Chase, 2011). This

provided an opportunity for former medical students with physical disabilities to recount their stories, have those stories collected, and ultimately shared. This study revealed the individual experiences of participants, and when those accounts are united, it became a collective narrative.

Emphasizing the importance that narrative researchers ascribe to their work, Chase (2011) depicted a sense of urgency in sharing the narratives of the participants. This urgency comes in the obligation of speaking, of being heard, or collective stories, and of public dialogue (Chase, 2011). This sense of urgency not only indicates the timeliness of the work, but also the necessity. There is a sense of urgency and opportunities within this study. Prior to making any substantive change, there is need to have the issues revealed so that the problems may be understood. This study uncovered the ways in which former medical students with physical disabilities experienced medical school, and shared both successes and challenges. Future dialogue may be informed by their experiences revealed through this narrative study.

More specifically, this research is a biographical study, in which I recorded the lived experiences of former medical students with physical disabilities (Creswell, 2013). This approach to inquiry allowed me to capture data that will illustrate the experiences through medical school and into professional practice. It is this type of research which some refer to as “identity work,” in which we seek to understand how individuals define themselves within specific contexts (Chase, 2005, p. 658).

Moreover, a narrative approach is an appropriate method to study the human experience (Savin-Baden & Major, 2013). This approach enabled me to capture and convey the ways in which the participants made meaning of their individual experiences

(Savin-Baden & Major, 2013). The collected data, the lived experiences of former medical students with physical disabilities, were best captured through narrative, as it is storytelling which is essential to the process of the creation of reality (Savin-Baden & Major, 2013). Savin-Baden and Major (2013) recognized that it is through stories that individuals create and re-create identity. How former students with physical disabilities construct their realities when in medical school was revealed through the stories that were told. Furthermore, Savin-Baden and Major (2013) explained that storytelling is often natural and therefore the creation of rich data is possible. A more comprehensive understanding of lived experiences is possible as participants are often content to reveal themselves through their stories (Savin-Baden & Major, 2013).

Social constructivism. Within narrative biography, I employed a social constructivist, interpretive framework as individuals create themselves and their reality through narrative (Savin-Baden & Major, 2013). This orientation allowed me to capture the perceptions of individuals through their own stories, which granted a richer understanding of the perceptions of the participants' experiences. Through the social constructivist framework, it is understood that individuals seek to make sense of the world around them, and do so by creating subjective meanings (Creswell, 2013). Within the social constructivist framework, an absolute, objective reality does not exist. Instead, individuals form their own realities from their own point of view. These realities are constructed as individuals interact with their environment and individuals within that environment (Berger & Luckmann, 1966). Consequently, it is through the viewpoint of the participants that our understanding of the experiences of medical students with physical disabilities was informed.

Individuals with physical disabilities have long been a silenced group; it is a group that certainly in this instance, is underrepresented in medical school enrollment and medical degree attainment. Because disability is a complex issue, the perceptions of individuals with physical disabilities about their experiences in medical school present an even more complex issue. As such, I sought an understanding of the individual experiences of participants. This understanding was best revealed by allowing those individuals, former medical students, to tell their stories (Creswell, 2013).

Site Selection and Participants

For this study, I pursued former medical students with disabilities. I opted to study only former medical students versus current medical students, as I wanted to allow former medical students time in order to process an understanding of their experiences. Weick (1995) described the process of sensemaking as a puzzle that is under continual redefinition. I sought to explore lived experience, that is, experiences that have already happened. It is through retrospective understanding that individuals make sense of what has already occurred (Weick, 1995). If we understand and assume that meanings are subjective, then the meanings that individuals create are derived and synthesized from many possible meanings (Weick, 1995).

When I initially proposed this study, I stated that I would have liked to have had conversations not only with individuals who successfully enrolled in and completed medical school, but also those former students who matriculated, yet ultimately left without earning a degree or residency opportunity. What I discovered is what I suspected: that the population of students with physical disabilities who began yet did not complete medical school was elusive. As such, all of the study participants successfully

completed medical school, a residency program, and were or are currently practicing physicians. By choosing former medical students, I intended to capture the totality of the medical school experience and beyond. A more complete picture has emerged of their entire experience, through the admissions process, into the didactic phase of the curriculum, and ultimately in the clinical and residency portion of their medical education. It is by looking at the breadth of their experience that a more complete exploration was possible.

There is not a universally agreed upon standard in terms of sample size in qualitative research (Creswell, 2013). Rather than focus on a particular number of research participants, the more important consideration is in collecting extensive detail about each individual (Creswell, 2013). As a strategy, I used purposeful sampling to select individuals who were “information-rich” so that an understanding of their individual experiences could be developed (Gall, Gall, & Borg, 2007, p. 178). Rather than strictly focusing on a specific number of participants, I wanted to partner with participants who would likely share rich detail about their lived experiences.

Creswell (2013) noted that he had found many examples of narrative studies with only one or two individuals, which is often due to the lack of a large pool of potential research participants available to develop a particular collective narrative. For this study, I found that a larger pool did exist. Ultimately seven individuals participated in this study. Two avenues were particularly fruitful in finding participants. Through review of the cogent literature, I was able to identify former medical students with physical disabilities, some of whom have already shared their experiences either through their own writing or the work of others. Through an internet search, I was able to locate contact

information, typically place of employment, for approximately 30 physicians with physical disabilities. I sent an initial letter (see Appendix A) or email depending on the contact information I was able to obtain, asking for their participation. Having secured participation through this contact, I also utilized snowball or chain sampling will to identify additional potential participants (Gall et al., 2007). Those identified individuals were able to recommend others as potential participants. I found that most of the recommended individuals were physicians who I had previously identified.

A second advantageous avenue for finding participants was The *Society of Physicians with Disabilities*, an organization that provides support for physicians, students, and physician assistants who have disabilities. Membership to this organization is free and open to all who wish to support healthcare professions with disabilities. As such, I became a member. The site moderator allowed me to send an email (see Appendix A) to members seeking their participation, and I quickly received responses from individuals who eventually agreed to participate.

Because this study focused on individuals with physical disabilities, rather than one specific disability, I sought to have a range of disabilities represented. I was perhaps fortunate that those who agreed to participate did represent a range of physical disabilities, and did not require criteria to limit the number of participants. As the main focus of this study is on the experiences of students with physical disabilities, I did not want to narrowly focus on one particular disability or impairment. The specific disability is not as important as the exploration of how the individual experienced medical school as an individual with a physical disability.

I had also initially thought that *The Student Doctor Network*, a nonprofit organization comprised of students in medical school or those wishing to enter medical school, would be another good resource. This organization has an extensive online forum which I utilized in my pursuit of potential participants. I searched for posts and discussion threads that focus on students with physical disabilities. However, I did not locate any discussion threads in which I was able to identify participants with physical disabilities who had already completed medical school. Relevant online discussions were from students with disabilities seeking advice on the feasibility of gaining admission to and completing medical school. If anything, this is another indication of the need for further study into the experiences of students with disabilities who have completed medical school.

Data Generation

The method of data generation for this study was the interviews with research participants. Riessman (2008) referred to interviews as “narrative occasions” (p. 23), whereas the creation of narrative and meaning is a collaborative process between the study participants and me as the researcher. As an approach, narrative involves the researcher capturing and presenting how the participant makes meaning of their lived experiences (Savin-Baden & Major, 2013). The conversation allowed the participants to provide their unique perspectives and reveal how they have interpreted the events of their lives and how their reality is constructed (Savin-Baden & Major, 2013). The co-construction of narrative occurs within the conversation. Throughout the conversation, I provided prompts (see Appendix B) to guide the conversation in order to develop an understanding of the experiences of participants and the ways in which they have created

meaning. The participants certainly shared their stories, although I helped to provide prompts for discussion and follow-up as needed.

This method of generating data through this collaborative endeavor is perhaps different than traditional interviewing, which often relies on stimulus from the interviewer and response from the research participant. Instead, the method of interview for this study was a conversation, without a standardized protocol, that allowed for the generation of an account of meaningful experiences (Riessman, 2008). The goal, is to when possible, replicate the elements of a natural conversation (Savin-Baden & Major, 2013).

Riessman (2008) acknowledged that narrative interviewing has more in common with ethnographic practice than with the type of interviewing often found in social science research. Social science research often relies on discrete or a close-ended line of questioning (Riessman, 2008). Questions that elicit “yes” or “no” responses are of little use for narrative research. However, in building a rich, thick description of an individual’s experience, we are able to better understand the individual and the social world in which that individual interacts (Denizen & Lincoln, 2011). The goal of collaborative interviewing is to generate detailed accounts of lived experiences, and not to simply collect brief answers or general statements (Riessman, 2008). In conducting these interviews, Riessman (2008) suggested following the normal rules of conversation, and not approaching the conversation as a standardized interview. Rather, the interview is a discourse between speakers; in this case, the researcher gives up some control, and although there are specific topics to be addressed, the researcher allows the participant to tell his or her story (Riessman, 2008). It was important for me to allow participants the

freedom to tell the stories of their lived experiences, yet at the same time, find ways in which to ask participants to reveal the perceptions of their experiences, as students with physical disabilities. Interviews are most appropriate when the researcher seeks to probe for a deeper level of understanding of the experiences of participants (Savin-Baden & Major, 2013).

The study originally proposed three distinct one-hour interviews with each participant, with those three interviews covering the journey to medical school, their experience in school, and finally their current practice as a physician. However, what I found is that the schedule of each participant varied and that the number of interviews did not follow the distinct boundaries that I had originally planned. The length of each interview and the number of interviews varied by participant. I had also originally intended for the first interview to only focus on the path to medical school, also including less evocative questions. This first interview was intended to develop trust and rapport before delving into the more sensitive topics of discussion. However, that was not often the case as most of the participants' disability was acquired either at birth or early in life. As such, difficult issues were sometimes discussed early in the interview process. I found each participant to be very willing to discuss sensitive topics while also sharing details of the lives, the discrimination they often faced and the barriers that they overcame. It was important to develop a relationship based on trust and understanding. Savin-Badin and Major (2013) discussed the importance of establishing rapport through prolonged engagement. Conducting multiple conversations with some participants fostered an environment in which the participants discussed their experiences, which often involved discrimination and overcoming difficult challenges.

I wanted to gain an understanding of how the participants perceive their experiences in medical school, now that they are no longer there. Weick (1995) noted that sensemaking is a continual process of understanding what has already been lived. Given Weick's (1995) understanding of retroactive sensemaking, I expected participants to have a different perspective about their medical school experiences than they did when they were still enrolled.

Prior to the first conversation, I electronically sent the participants the interview prompts (see Appendix B) as a means to help jog their memory. I provided the prompts prior to each interview so the participant may begin thinking about the topics for each individual conversation. For some participants, medical school may be a distant memory. I hoped that these prompts would help them remember their meaningful experiences as medical students.

Ideally, I would have preferred to conduct the conversations in person, face-to-face. However, this study was not limited to one site or geographic area, and therefore face-to-face conversations were not possible or practical. In an effort to develop a consistent level of rapport with all participants, none of the conversations occurred in person. I inquired of participants their preferred method of conducting the conversation. Among the possibilities were telephone, Skype, Facetime, Adobe Connect, or any number of additional video conferencing applications and software. All of the conversations occurred via telephone, with the exception of the conversations I had with Dr. Dowell. He preferred a conversation where he and I could see one another. It was during his last year of residency that he had a cochlear implant, yet still preferred a face-to-face conversation. Each participant signed a consent form (see Appendix C). Prior to

our conversations, I reminded the participant that I would be audio recording the conversations. The content of the consent form will be discussed in the section within this chapter on ethical considerations.

Data Analysis

I digitally recorded the interviews and used The Perfect Word, a transcription service, to produce verbatim transcriptions of the conversations, which began the analysis process. Riessman (2008) explained that texts could be analyzed relative to theme (what is said), structure (how the stories are told), and dialogic/performance (to whom the language is directed and the purpose of that language). As I wanted to understand the experiences of medical students with physical disabilities, the primary analysis focused on the themes of the text. However, it is also worth noting that since narrative is co-constructed, dialogic/performance analysis also occurred. It is the interactive approach to conversation that constructs the narrative (Riessman, 2008). Although I attempted to create an environment in which natural conversation could occur, it is important to note that the participants were directing their utterances to me and that the purposes of those utterances were, in part, to aid in the accomplishment of this study. One could also argue that the participants, who willingly agreed to this study, participated with altruistic intentions, wishing to reveal the barriers they faced, as well as their successes, to aid the medical education community and students similarly situated. Given time commitment and the enthusiasm through which they shared their stories, I sensed that the participants genuinely wanted to share their experiences to aid others in their pursuit of medical education. Additionally, structural analysis was also present as I examined the ways in

which the participants constructed their stories. That is, the composition of their stories perhaps revealed the themes they wished to convey to me, the researcher.

So that I could explore the experiences of former medical students with physical disabilities, I focused the analysis on studying the themes that emerged through our conversation. Again, the primary focus of thematic analysis is the content of the conversation, or “what” is said (Riessman, 2008). As I relied on social constructivism as the interpretive framework, it is the content of the conversation, or the “what,” which revealed the subjective realities constructed by the individual (Berger & Luckmann, 1966). Here, the analysis is not of objective reality, but rather of those subjective perspectives formed through the interaction of the participant with his or her environments, as well as other individuals within those environments (Berger & Luckmann, 1966).

I conducted an analysis on how individuals made sense of their experiences as medical students. Weick (1995) described the creation of meaning as an attentional process. During the analysis of what has been uncovered, I certainly expected that those authors who were identified through prior writings of their experiences as a medical student with physical disability, to have perhaps have constructed unique meanings. It was wise to consider how their meanings may have been constructed through different means than those who have not previously written about their experiences. That is not to suggest that participants who have not written about their experiences have not thought about them nor developed a retroactive understanding of their experiences, but to consider how the process of retroactive meaning-making may be different.

Weick (1995) noted the importance of environment, as the process of sensemaking is contingent upon the world around us. It was necessary to consider not only place, but also the time in which the participant attended medical school. In order to conduct a proper analysis of sensemaking, context must be considered. The experiences of medical students with physical disabilities will certainly be affected by the environment respective of the time in which the student was in school. Federal disability legislation, AAMC recommendations, and attitudes of individuals towards those with disabilities, have certainly changed through the years. The voices of participants were situated within the context of their unique environments. Similarly, their current environment, helped to provide further context for the ways in which participants have processed retroactive sensemaking of those medical school experiences. It is our ongoing experiences that affect how and the ways in which we make sense of the prior events of our lives (Weick, 1995). The profiles in the fourth chapter help to provide a context for the participant medical school experience.

Riessman (2008) recognized that for proper analysis, the researcher should consider appropriate thematics developed through prior and emergent theory, the purpose of the investigation, and the data itself. In consideration of theory and the purpose of study, I developed codes *a priori* (see Appendix D) based on the social model of disability and what had been previously revealed in the literature about the experiences of medical students with physical disabilities. During the analysis process, I added additional codes to reflect emergent themes as participants shared their stories. I also found that themes emerged from the data, which was not unexpected. Any codes not generated *a priori*, which emerged during the conversations, and later in the text analysis,

were added to the code list (see Appendix D). It is important to remember that analysis is a recursive process. I returned to the themes that emerged in the review of the literature as I analyzed the data collected via participant conversations.

There does not appear to be a universally accepted unit of analysis in the narrative tradition. It is recommended that the researcher preserve sequences and not thematically code segments; for interpretive purposes, the story should be kept intact (Riessman, 2008). Riessman (2008) noted that narrative analysis is case-centered, whereas the case boundaries are highly interpretive. Although difficult to speculate prior to the study, it was necessary to make a determination on the bounded segments, perhaps of a single incident, in order to analyze the data generated. Bounded segments can be a work, phrase, sentence, or paragraph. I analyzed the participant utterances and make a determination on the specific segments to be coded. I attempted to preserve sequence and the detailed content of long sequences and at the same time, as I made an appropriate determination of case boundaries.

I utilized Dedoose, a web-based qualitative research analysis tool. Using Dedoose helped in the organization of the participant stories and utterances. The codes were loaded into Dedoose and were then assigned to the narrative segments based on the content of those utterances. The utterances, which had been coded based on content, were then analyzed to see what themes had emerged.

Quality and Rigor

There are essentially two levels of measuring accuracy in narrative research, the stories told by the participants and the researcher's analysis (Riessman, 2008). Here I

discuss the trustworthiness of data analysis; again, using the work of Riessman (2008) as a guide.

Historical truth and correspondence. Riessman (2008) acknowledged that in some narrative studies, the investigator would be wise to consider the alignment between the stories told by research participants and established historical truth. Although the stories told by some participants differed from what had previously revealed, these stories are of interest, and illustrative of newfound perspectives. Additionally, most contemporary historians tend to not view historical events in terms of absolute truth (Riessman, 2008). As this study utilized a social constructivist perspective, objective reality is not nearly as important as the perceived realities of the participants. Riessman (2008) recognized that narrative researchers accept that the stories told by participants are subjective as there are multiple realities. Therefore, the facts of the story are much less important than the meanings individuals assign to their lived experiences (Riessman, 2008).

I practiced “member checking” as I endeavored to interpret the participants’ interpretation of their lived experiences (Creswell, 2013, p. 252). After the conversations had been transcribed, I drafted a short interpretation of what was shared by the participant. By sharing my interpretations with the study participants, I had a better understanding of the accuracy of my analysis. Participants did send feedback on my initial interpretations, typically to correct factual inaccuracies. Dr. Marie did provide feedback to correct what she saw as an inaccurate interpretation. I will describe how her current employer has not provided accommodations. I interpreted this as disability discrimination based on her categorization. I have included her direct quote of the

situation, where she stated that she is not sure of the motivation of her employer other than maliciousness.

Riessman (2008) noted the importance of allowing the individuals the opportunity to examine the data that they provided. Furthermore quality is improved when participant are presented with the interpretive conclusions developed in the research (Riessman, 2008). This process goes beyond simply presenting the participants with a transcription of the conversation; instead the researcher should provide any interpretations of those conversations (Riessman, 2008). Although I analyzed the data through the specific theoretical lens, the social model of disability, I found the participants had unique perspectives and ways in which they have interpreted their lived experiences. Therefore, this collaborative process, of member checking, provided opportunities to review my interpretations against the interpretations of the participants.

Coherence and presentation. Presenting a coherent account of the participants' narrative, in addition to the researcher's interpretation, is another aspect of accuracy to be considered (Riessman, 2008). I attempted to establish some level of trustworthiness in how I re-story the accounts of participants. I presented the narratives logically, with careful attention to coherence and presentation. I provided evidence, as Riessman (2008) suggested, from the narratives in order to justify the claims I have made. The use of direct quotation and summarized conversation helps the researcher justify the analysis (Riessman, 2008).

The use of rich, thick description allows the reader to make decisions on the transferability of the information presented (Lincoln & Guba, 1985). I described not only the stories of the participants, but the participants themselves. By providing appropriate

detail about the participants, their stories, and the themes that have emerged, readers have the opportunity to determine if the results can be transferred to other settings (Creswell, 2013). The use of thick description, with sufficient detail, including context, quotes, and “strong action verbs” provides the reader with a vivid picture of the themes that are under exploration (Creswell, 2013, p. 252).

Riessman (2008) also recommended keeping a reflexive journal as a measure of credibility and trustworthiness. I kept a journal that documented methodological decisions in an attempt to be more aware of the decisions that I make. This audit trail of decisions assists in establishing validity (Riessman, 2008). As a novice researcher, it was important to demonstrate how I collected and interpreted data (Riessman, 2008). Demonstrating, with detailed transparency, how the study was implemented serves to increase the trustworthiness of the study and any conclusions presented.

Reliability. Since the coding process is highly interpretive, an external check on the coding process provides a measure of reliability (Creswell, 2013). Creswell (2013) suggested using external coders to review how codes are used in analyzing the transcribed conversation. I asked a trusted former classmate, someone who had recently earned her PhD, to review my coding. Having already collaborated on a qualitative study, I knew her to be conscientious, thorough, and someone I could rely upon. Rather than seek to prove intercoder reliability, which is a positivistic approach (Savin-Baden & Major, 2013), I utilized a flexible process by which the external coder provided feedback and questioned why certain codes were assigned to utterances, or the bounded segments. I wanted her to scrutinize my work and question my decisions. Her outside perspective

enable me to reassess some of the coding decisions that I had made and, if necessary, to reevaluate my interpretations.

I followed a similar process to the one that Creswell (2013) described in utilizing an external coder. First we met and discussed the code names, the utterances, and the meanings of the codes. It was important that a shared understanding of the code definitions was established. I added the transcripts of the participant conversations into Dedoose. I then read the transcripts, and added the codes to the utterances. It was during this analysis that new codes were added to reflect the emergent themes.

Once the transcripts were coded, the external coder reviewed my work. As it would have been unrealistic to assume that we would have independently agreed on the exact same segments, I asked the external coder to only review the codes that I had assigned to the utterances. As she finished her review, she communicated to me, typically via email, her questioning of my code choices. Based on her feedback, I then could question my thinking and consider alternative meanings.

It was helpful that the peer reviewer and I established a shared meaning of the codes prior to the peer review, which certainly helped to reduce misinterpretation of the codes that we assigned to the utterances. As I completed my individual coding, I anticipated and found that there were instances where utterances reflected multiple meanings and thus multiple codes. However, what I found is that I would typically focus more narrowly on a specific code and meaning, whereas the peer reviewer assigned multiple codes more frequently. As I reflected upon the peer review process, I suspect that I, having engaged with the participants and the study itself, approached coding less objectively than the peer reviewer. The peer review process provided me with attention

to the multiple ways in which single utterances could provide meaning and support for the range of themes that emerged.

Ethical Considerations

All participants signed consent forms (see Appendix C) informing them of what I hoped to learn from them, and possible risks and benefits to participation. The participants were also informed that they could stop participation in the study at any point in time. The study was approved by the Education Institutional Review Board of the College of William and Mary. All interview materials were protected, with paper materials kept in a locked office in a locked desk. All electronic files were password protected. Upon successful completion of this study, all electronic files were erased and paper files destroyed.

Measures were also employed to protect the anonymity of the participants. All participants were assigned pseudonyms, of which five of the seven participants chose themselves. I am the only person with access to the names of the participants with their matching pseudonym. As all participants are or were practicing physicians, I have not revealed any identifiable information about their current practice or its location. Additionally, pseudonyms were used for personally identifiable information related to the medical school they attended or their place of residency training.

Prior to our conversation, I informed each participant of his or her rights on the informed consent form (see Appendix C). I provided participants with information on how their responses will be recorded and used in the study. Each participant was given my contact information, my chair's contact information, as well as contact information

for the School of Education Internal Review committee (EDIRC) and the University Protection of Human Subjects Committee (PHSC).

Although the participants were former medical students, who have earned their medical degree, it is important to remember that individuals with disability are a vulnerable population (Mitchell & Buchele-Ash, 2000). I anticipated that our conversations might include instances that may be difficult for the participant. There was the possibility that some of their experiences may have revealed instances of discrimination and prejudice. There was also the possibility that these prior experiences would cause emotional or psychological distress. Although these experiences could serve as illustrative examples, participants were informed that they could opt-out of any topic they were reticent to discuss. Although the participant did discuss difficult experiences, I found that each individual freely shared those experiences. The participants did not reveal nor did I sense any emotional distress. Instead, I found the participants offered thoughtful reflections on those experiences, without a sign of distress.

Creswell (2013) offered several suggestions in developing rapport in narrative studies. For example, participants knew that they are giving their permission to participate in the study. Additionally, individuals were informed of the purpose of the study and the reasons that they have been asked to participate. All participants were also granted anonymity, and later offered pseudonyms to be used in place of their names. Also, I made every effort to explain the nature of the interviews during the process of participant recruitment. Their participation was completely voluntary and they had the option to decline participation or answer any question during the conversation.

Limitations and Delimitations

I have chosen to intentionally limit this study to individuals with physical disabilities. Rather than include individuals with learning and cognitive disabilities, the focus here will be on the experiences of former students with physical disabilities. Some specialties of medicine have a strong hands-on component, and certainly medical students are expected to be able to perform basic medical procedures during their clinical education. In light of certain physical impairments that have the potential to make the mastery of those manual procedures difficult, if not unobtainable, participants with physical disabilities face unique challenges. Another delimiting aspect of this study is that only former medical students will be asked to participate. I wanted former students to have had the time to develop a retrospective understanding of their experiences, rather than trying to make sense of what is currently occurring.

Perhaps the greatest potential limitation is that the generated data built upon the memories of the participants. It is to be expected that human memory is fallible and for some participants, many years have passed since leaving medical school. The purpose of this study was to understand perceptions and one's perceptions may change over time.

Another limitation of this study is that although a diversity of physical disabilities are present, the participants all identify as white. Additionally, of the seven participants, only one is female. Having participants who represent a broader range of racial and ethnic identities would have engendered a more thorough study and presents a limitation for this research. The lone female participant, Dr. Marie, did discuss how her experiences were perhaps different than her male participant counterparts. She explained that some of the instances whereas she received different treatment or discriminatory

attitudes might have been due to her gender, rather than her disability. As the author, I tried to carefully relate those instances as Dr. Marie described them to me as to not misrepresent her perceptions of what she experienced. Since Dr. Marie attributed some of the mistreatment she received as related to her gender, I can only suspect that non-white individuals would report similar mistreatment based on race and ethnicity.

Researcher bias and subjectivity are also potential limitations. These limitations hold true for all qualitative research. However, I have been clear to address my conscious biases towards individuals with physical disabilities as well as my thoughts about the social model of disability. Also, I have included a researcher as instrument statement in the next section. I have seen first-hand, individuals with tremendous intellectual capacity be denied opportunities to continue the study of medicine. I am a proponent of the social model of disability. I strived to constantly recognize and be aware of where I, as the instrument, was situated within the study. Data analysis and interpretation will always include my assumptions as a researcher (Creswell, 2013). However, my awareness of these assumptions help me apply a better measure of objectivity.

Researcher as Instrument

In semi-structured or unstructured qualitative interviews, the researcher is the instrument (Pezella, Pettigrew, & Miller-Day, 2012). As the instrument in the study, it is important to reveal my subjectivities. The genesis of this study was the interactions I had with a former medical student at my place of employment, which is a regional medical school. This student, who has cerebral palsy, was having some difficulties during her third year of medical school. Although she performed very well during the first two

years of the curriculum, specifically the didactic portion of instruction, she was having much less success in the clinical phase of her education. She had proven herself to be a great student in the classroom but was struggling with the hands-on aspect of medicine. I eventually discovered that she had withdrawn from school.

When I found out she had left school, I had many questions. I wondered if she received the help that her specific situation required; was she accommodated in a way that would enable her to be successful? Did accommodations exist that would enable her to be successful in medical school, and eventually as a physician? Is the practice of medicine only available to those without physical impairment?

My search for answers to these questions led me in a number of different directions. I read about students with physical disabilities who were able to successfully complete medical school and now successfully practicing medicine. Conversely, I read about students who dropped-out and still others who completed medical school, yet were not successful in their residency training programs. Even more, I read many accounts of potential students who were never given a chance to enroll in medical school, perhaps due to discriminating practices or belief that no accommodations are available that would allow them to be successful. I read about the hardships and challenges that students had to overcome, not only due to their physical impairments, but also do to what other believed they were unable to do. Although some students never doubted their intellectual abilities, they worried about their capacity to overcome discrimination and those who doubted their ability to complete the more hands-on aspects of medicine.

It was then that I discovered information regarding the “undifferentiated graduate.” I found that this notion, that every medical student should have the same

broad knowledge base and basic clinical abilities, regardless of any personal differences, is one that is under debate within the medical education community. Should every student be expected to possess the same knowledge and technical ability regardless of their personal interests and intended medical specialty? I took a side in the debate. To me, an understanding of the medical procedure, the ability to direct an intermediary, and the ability to provide medical treatment based on an accurate interpretation of the results, should be emphasized over one's ability to actually perform the procedures.

Certainly I acknowledge that I feel the idea of the undifferentiated graduate is an antiquated notion in modern medicine. Physicians, once completing medical school, typically focus on a narrow aspect of medicine. Students, who during school were required to have broad knowledge of all areas of medicine, once they graduate, are no longer expected to retain those areas in which they do not practice. I also understand that not every area of medicine is going to be available to every student, depending on his or her specific abilities or impairments. Yet, I feel that individuals with physical disabilities are unfairly marginalized in medical school. I fear that many talented and capable individuals are excluded from even the opportunity to attend medical school. It is ultimately my hope that this study will illustrate the ways in which individuals with physical disabilities have experienced medical school. Optimistically, I feel that their experiences, both the good and the bad, will help the medical education community not only understand their experiences, but also foster an environment hospitable to those who have previously been denied the opportunity to be successful.

Summary

This study utilized Oliver's (1990) social model of disability to gain an understanding of the experiences of former medical students with physical disabilities. The ways in which students experienced the medical school environment were uncovered. Narrative analysis (Reissman, 2008), from a social constructivist approach, was utilized to gain an understanding on how former students perceived their environment and constructed disability within medical school. The following chapters will present profiles of the participants, what was revealed through data collection and analysis, and recommendations for practice, future research, and conclusions to what was revealed.

CHAPTER 4: PARTICIPANT PORTRAITS

This chapter is devoted to presenting portraits of the seven study participants. The portraits are presented from data that were collected through the individual interviews I had with each participant. In an effort to develop a similar rapport with each participant and because this study was not bound to a specific geographic region, each interview was conducted over telephone, with the exception of Dr. Dowell. Dr. Dowell was born with profound hearing loss and although he has had a cochlear implant since the final year of his residency training, he requested that we conduct our conversations via FaceTime. This allowed him to see my face, which assisted in our communication. Prior to the cochlear implant, and when sign language interpreters were not present, lip-reading aided his communication.

Of the seven participants, six were male and all were White. That six of the seven participants were male is perhaps unsurprising given that male physicians outnumber female physicians nearly 2-to-1 (Young et al., 2015). This representation statistic, compounded with the additional complexity of disability, conceivably demonstrates that medical schools have been traditionally been less accepting of female candidates, not only with disabilities but also absent disability. The participants exhibited a variety of disabilities, which was one of the goals of this study. Although limited to physical disability, I did not want to focus on any one in particular. I originally only intended to include students who attended medical school in the United States, either earning a medical degree (MD) or doctor of osteopathic medicine (DO) however, the story of Dr.

Mason was compelling. Dr. Mason, who eventually attended a medical school in the Caribbean, was not accepted into any medical school in the United States. His story provides some insight into an issue presented in this study, namely that the number of students with physical disabilities in medical school is lower compared to the lifetime incidence of physical disability among the general population and the number of undergraduate students with physical disability. As such, Dr. Mason's compelling narrative is included in this study. Presented below are the profiles of the seven participants. Again, pseudonyms are used to mask the personal identities of each participant.

Dr. Wayne

Dr. Wayne was inspired at an early age to study medicine because he admired his father, who was also a physician. When he was young, he first developed signs of night blindness and tunnel vision. However, an ophthalmologist later gave Dr. Wayne his blessing to attend medical school as he felt that he would retain his central vision long enough for him to successfully complete medical school and begin practice. He attended a medical school in the Northeast where he completed a six-year program where he earned his bachelor's and medical degree. He then subsequently completed a residency program in rehabilitation medicine in the early 1970s.

During his time in medical school, Dr. Wayne did not use any assistive devices, instead relying on alternative methods to acquire information and learn the extensive material required of medical students. For example, when assisting in surgery, which as a student was limited to holding retractors and cutting sutures, he learned that he could do much of it by feel. He has continued using alternative methods, or what he calls

substitution, in his current practice, relying on tactile or auditory techniques when conducting physical examination.

Despite his declining eyesight, he did well academically; yet he knew that his choice of medical specialty would be somewhat limited. It was after reading a book by the prominent physician Howard Rusk that he became interested in rehabilitation medicine. The idea of treating the whole person was intriguing and although he may not have realized it at the time, he later recognized the opportunities he had to serve as a positive model to those he provides care.

When working with patients, Dr. Wayne feels that those under his care perhaps see him as having a better understanding or compassion than others might, not necessarily because of his disability, but rather because his disability may have enhanced his capacity for compassion and understanding. He feels that his patients continue to come to him because he does not treat them like a detached and unsympathetic physician; instead he is friendly, affable, and is able to communicate effectively, all qualities that highlighted our conversation. With him, patients are able to see that he is confident in his abilities, doing things quickly and easily.

In the early 1990s, and with declining vision, Dr. Wayne experienced a sort of turning point in his life. By this time, he was well established in his career and had a number of noteworthy publications, yet reading charts became more difficult, but not impossible. He was working at a hospital that did not train residents, so he didn't have anyone who could provide assistance. He could have hired an assistant to assist with writing and reading, yet decided against that course of action. It was during this time that he became the medical director for a guild for the blind, a big agency that also did some

medical practice. However, he soon experienced a debilitating personal illness not related to his disability. Through some personal connections, he attended a national convention for the blind. Attending the meeting was reinvigorating; he met some amazing people and became more confident in his abilities and began to embrace assistive technology in his practice and personal life, such as books-on-tape. It was during this time that he turned work as a clinical director. He returned to rehabilitation medicine energized, where he is still employed. Here, he continues to see patients, write, teach, and oversee a residency program in rehabilitation medicine.

Dr. Mason

Dr. Mason became interested in medicine from a very early age. He was born with cerebral palsy and was inspired by those physicians who provided care for him. Naturally, he was drawn to pediatrics given his experiences as a patient and his empathy for others in similar situations. As he grew older and learned more about the profession, his resolve to help children was re-affirmed. He has credited his faith in helping him find the right path to becoming a physician

Although in his youth he was frequently ridiculed by classmates, with the support of his parents, he never wavered from his desire to follow his dreams. Dr. Mason attended college in the Southeast in the late 2000s where he studied biomedical sciences. While he was there, he did not request much in the way of accommodations as he had the help of his service dog, who helped his balance and acted as a living cane. His undergraduate experience was often unpleasant; he was the consistent target of teasing and taunting from his classmates. A number of academic advisors persuaded him against

pursuing medical school until at last, he found an advisor who was supportive of him and helped him navigate the process of applying to medical school.

Although he did well academically and scored well on the MCAT, his medical school interviews did not go well. In particular, one interview committee member told him that he would never be accepted into their medical school and that patients would never seek his services, all because of his disability. Of all the medical schools he applied, he was not accepted into a single one. Devastated because of the rejections, he went home and cried. Upon retrieving the afternoon mail, he found a post card from a medical school located in the Caribbean. He knew that God was leading him on different path. Instead of navigating his way through another year of applications and interview, and likely rejections, he decided to apply to the Caribbean medical school and was accepted.

Attending medical school on a small island in the Caribbean was certainly a unique experience. Some residents feared that cerebral palsy was a communicable disease and were initially fearful of his presence on the island. There were also some initial awkward situations surrounding his service dog. After many attempts, he finally found someone willing to let his service dog live, along with him, inside his rented residence. Comically, he did have to assure residents that his dog would not eat their goats, something that was initially feared.

It was in the Caribbean that he met his future wife. She, a fellow medical student from Canada, and Dr. Mason, bonded through study sessions and a mutual interest in diving. Dr. Mason also developed a unique bond with the children on the island, who had most likely never seen an adult with a disability. He enjoyed being a part of the

community and showing others that we have more similarities than differences. On the island, he also met and bonded with a young boy, who also had cerebral palsy. Despite everyone's doubts, the boy gained the ability to walk after surgery. Dr. Mason felt that this was a transformative moment for the island as it demonstrated that the spirit is more important than the body or our physical limitations.

It was in the United States where Dr. Mason would complete the final two clinical years of his medical education. Beginning clinical rotations were particularly stressful; not knowing what was expected of him and not having his service dog on some rotations (e.g., surgery) caused some trepidation. In fact, this period of transition did not go well. He was initially told by a clinical coordinator that he was not permitted to have use of his service dog. Dr. Mason assured her that he was legally permitted have his service dog assist him. He was devastated, feeling that despite what he had already been through, he would never become a physician. He eventually was permitted to rotate into a hospital at a smaller site with a more understanding clinical coordinator. Despite this initial obstacle, he enjoyed the clinical portion of his education and performed well academically.

Dr. Mason completed a three-year residency program in pediatrics where he remained post-residency to be a hospitalist. Currently, he is at a pediatrics hospitalist at two locations in the United States. He also works with hyperbaric and wound care medicine, and operates clinics in the Caribbean. Dr. Mason offered that he was well received by his patients and their families and those under his care see an empathy and compassion in him; forged through an unspoken bond. Patients see that he has been through something similar and that there is always hope. The resident physicians whom

he supervises are the recipients of his teachings, not only as an individual who is disabled, but also as a patient. Dr. Mason credits perseverance, determination, and faith for his success, while also enjoying support from his family and close friends. Being able to leverage stumbling blocks as stepping stones has served him well on his journey through medical school to practice.

Dr. Manheim

It was a diving accident as an undergraduate student in his early 20s that rendered Dr. Manheim quadriplegic; he spent 14 months as an inpatient in a rehabilitation facility. Prior to his injury he was interested in science. When he was discharged from rehabilitation, he finished a bachelor's degree in genetics and continued his education, enrolling in a graduate molecular biology program. However, he decided that he was perhaps ill-suited to become a laboratory technician, as he had paralyzed fingers. It was his academic advisor who suggested medical school. It was certainly an exciting, yet intimidating prospect. Attending medical school became more of a possibility after reading the Association of Academic Physiatrists (AAP) recommended guidelines for admitting individuals with disabilities to medical school.

The chairperson at the department of rehabilitation medicine who performed one of his surgeries saw how motivated he was and wrote a letter in support of his application to medical school. Additionally, Dr. Manheim sent surveys to scientists with disabilities, asking how they were accommodated in school and what recommendations they had for someone in a similar situation. Armed with the results of his survey and a competitive MCAT score and GPA, he applied to medical schools. He found mixed reactions during

the interview process. Some interview committees admired his resolve and desire to be a physician, and others were offended that he has even considered applying.

Dr. Manheim attended medical school in the Midwest in the early 1990s.

Although the disability support services office on campus was generally helpful, he found that he was often the source of advice on how he could best be supported. Faculty and staff were generally supportive and for those students who avoided him, he did not go out of his way to initiate interactions. It was during this time, that Dr. Manheim utilized a number of functional instruments and medical devices, such as orthopedic braces (tenodesis splints) that allowed him the ability to do a gross pinch and to use tweezers and a scalpel to participate in dissections. Additionally, it was during medical school that he learned how to use a specialized wheelchair, allowing him to stand and participate in surgery.

Although he was apprehensive about the transition to the clinical phase of his medical education, he found his instructors and preceptors were very cooperative. However, he found the attitudes of two individuals during his rotations, a resident physician and an attending physician, to be quite discriminatory. Neither physician took the opportunity to say anything directly to him, although he knew that neither believed he had any right to be there. He ignored the implicit negativity towards him and simply focused on doing well, especially on doing meticulous patient examinations and holding himself to a higher standard. His determined attitude and ability to preserve and effectively complete the clinical rotations, despite the attitudinal obstacles, illustrates, in part, how he achieved success in medical school and practice.

When deciding on residency programs, he knew that his personal insight into neurological injury and rehabilitation could be of great benefit to those under his care. He attended a residency program in physical medicine and rehabilitation at a hospital affiliated with a medical school. He remained at the facility until his retirement in the early 2010s. He wishes he were still able to practice yet retired due to recurrent kidney stones. Human resources mandated that only full-time employees are eligible for life insurance. With two young children, Dr. Manheim, reasoned that not being eligible for life insurance was an untenable situation.

He was well received by his patients, who were comforted in having a physician who certainly had more than a passing familiarity with disability. There is now a teaching award named in his honor as an acknowledgement of the instruction he provided to medical students and residents during his time as an attending physician and faculty member. Students and residents were interested in his experiences, not only in medical training, but also as someone with a disability.

Dr. Vermont

As the result of severe electrical burns from an accident as an undergraduate student, Dr. Vermont had amputations of one arm below the elbow and both legs below the knee. It was in the early 1990s and nearly a year after the accident when he returned to school and completed an undergraduate degree in the humanities. Initially, he focused on the physical aspects of his readjustment, as he knew that he would confront the emotional component for years to come. This readjustment, despite being intense and exhausting, was a period of rich adaptation. This exploration of the human condition, through his re-acclimation, was both rewarding and therapeutic. So much of his energy

was focused on living in the moment and getting through the day, that when he graduated, he was not sure what he would do next. Dr. Vermont did know that he wanted to use his experiences as an individual with a disability, not wanting to simply put those experiences behind him. Believing medicine to be a career in which he could leverage his experiences to provide service to others, Dr. Vermont started down a new path.

After heading to the West coast to complete a post-baccalaureate pre-medical graduate program, Dr. Vermont began to apply and interview for medical school. During candidate interviews, he proactively discussed his disability; he was determined to frame his disability as a strength and discuss how it could be a source of empathy. It was important for him to openly talk about his disability and to engender a discussion on the ways in which he could navigate the medical school curriculum. He reasoned that he, along with the school, could creatively discover how to be successful. The interviewers seemed to have appreciated this approach and overall the interview process went well.

After receiving a few different offers, Dr. Vermont decided to attend medical school on the West coast. As the study of medicine had not been a lifelong dream, medical training and the subject matter was very much new to him. However, he did well academically. His disability, coupled with his intense experiences as a patient, certainly made him unique among his classmates. This uniqueness forged a sense of confidence, rather than a source of insecurity. For the most part, classmates were supportive and expressed a genuine interest in his experiences. Dr. Vermont freely discussed his disability and background as a patient. He found similar support with his instructors, while also encouraging faculty members to ask him questions. The medical school was

supportive despite not having prior experience accommodating someone with his specific disability. There was always mutual willingness to find out what was possible.

Dr. Vermont found the move from the classroom to the clinical setting to be as challenging as it is for any medical student making the same transition. At that time, he was experiencing chronic pain, so much that significant amounts of standing and walking were difficult. Taking a proactive approach, which was typical, Dr. Vermont was upfront with his clinical preceptors and described what he would need in to be successful (e.g. a stool used during surgery during periods of prolonged standing). He performed well clinically, finding every challenge to be surmountable.

There was a point in medical school in which Dr. Vermont decided that although he would graduate, he would not participate in the match process, effectively ending or at the very least postponing his medical career. He had recently completed a clinical rotation in rehabilitation medicine, his intended area of post-graduate medical training, yet found that he did not enjoy that specialty area as much as he thought he would. This realization, coupled with a bout of depression and a close family member's death, were factors in his decision not to continue to residency. However, the dean of his medical school urged him to complete an internship and it was during this time that he became interested in palliative medicine, which later became his medical specialty.

He eventually attended a residency program close to where his parents were living in the Mid-West. Coincidentally, the medical center had one of the oldest and best palliative programs in the county. When his parents moved to the West coast, he followed and was accepted to a second-year internal medicine program. He found the experience to be richly rewarding and his love of palliative care was re-affirmed. In

practice, he knew that he would be able to draw from his own experiences and use his personal history to provide care to his patients. He works part-time at a medical college as a clinician and faculty member in addition to being the director of a hospice agency.

Teaching students and resident physicians is something that he enjoys, especially focusing on philosophical issues and end-of-life care. Dr. Vermont feels that he is overwhelmingly positively received by those under his care. Even without directly discussing his personal experiences with disability, his physical appearance signals to patients that he understands their situation.

Dr. David

Dr. David became interested in the study of medicine as a high school student. He found himself interested in how physicians interacted with one another and how they helped patients. He knew that he wanted to do something where he would interact with people. As he did not acquire his disability until the final year of medical school, his path through the application process is perhaps more typical than the experiences of the other participants. He was accepted into a joint BS-DO program, in which he would automatically qualify for the medical program, as long as he did well academically and earned the requisite MCAT. His friends and family were very supportive of his decision to attend medical school, although some did not like that he was attending an osteopathic school, rather than study allopathic medicine.

The first year of medical school was a challenge, yet not unlike what he expected the majority of first year medical students to experience. The amount of work expected of medical students is decidedly greater than what is acceptable of undergraduates. The transition to the clinical setting was relatively uncomplicated. It was during the summer

prior to his last year of school that he developed cervico thoracic torsional dystonia. He was away from school, interviewing for a residency position, when he woke up with not being able to move his neck, head, or shoulder. He had seen a patient with dystonia in one of his rotations and knew almost immediately what it was, which was rather frightening. Postponing the residency interview, he somehow drove himself home and saw a neurologist who confirmed what he had already suspected.

Having a new disability made the fourth year of medical school physically challenging. It was during this time that he started a course of muscle relaxant medication and because of a lack of study time, did not initially pass the Step II examination. He had not sought accommodations, as he had not even considered it a possibility. Rather than disclose his disability to anyone in medical school, he chose to persevere and not look back. In retrospect, Dr. David was in denial about his condition, yet he now understands that hiding his disability the best he could was perhaps a point of pride.

Despite not disclosing his disability to anyone at the school, he was visibly different. Some close friends knew, yet he was not entirely even sure what to say to anyone. His body was positioned differently than before and he was physically slower. There were no specific strategies or accommodations that he utilized to make it through the final year of medical school. Rather, Dr. David simply relied on his determination and relatively high pain tolerance to successfully complete his studies. Retaking Step 2 was stressful, yet his anxiety was mitigated by having his medication regulated and knowing that he was prepared. He was successful in his second attempt at Step 2. Completing medical school was really a confirmation of what he already knew about

himself, that nothing was going to stand in his way from begin successful. After completing a one-year internship, he then moved on and did a residency in rehabilitation medicine, completing the program in 2011.

Dr. David currently practices physical medicine and rehabilitation, often working with individuals who are disabled. Although he does not view himself as all that different, he has had patients tell him that he is in an inspiration to them. Despite the physical differences, which perhaps cannot be overlooked, Dr. David feels that he is on the same physical level as everyone else. He does not feel that patients view him differently than other physicians, other than his physical appearance as a bit unique. Although older patients may be less understanding of him, he has seen a change in this attitude, even in the short amount of time that he has been in practice.

Dr. Dowell

Dr. Dowell was born with profound hearing loss. He had a variety of academic interests and had not seriously considered medicine prior to college. His interest in medicine was sparked after a family member was diagnosed with cancer and after experiencing the home birth of a sibling. Also during college, his involvement in community organizations, most notably with other individuals who are deaf or hard-of-hearing, stimulated an interest in blending science with the social situations in which he was involve as an individuals with profound hearing loss. Although he was interested in medicine, he wondered if it were feasible.

He attended a small private college on scholarship, which covered most of his expenses. Although the disabilities services office did not have prior experience with deaf or hard-of-hearing students, he found them to be generally supportive. However, an

awkward situation in which a college professor introduced him to the class and publically asked if anyone would be willing to be his note taker demonstrated that he would need to be proactive and be his own advocate. Only one student volunteered, and despite her sincere generosity, her limited command of the English language was problematic. He realized that he would need to be upfront with securing his accommodations rather than be at the whim of his instructors.

Contacting and requesting advice from two practicing physicians who were hard-of-hearing proved to very helpful. These two physicians helped him to anticipate potential obstacles and think about ways in which those obstacles could be overcome. It was important for him to think about what he personally would need to do to achieve success, considering there are different levels of hearing loss. What each individual needs to be successful is different. Both physicians helped him realize that he was not alone in his pursuit and that there were others before him who had been successful.

His family and friends were supportive of his decision to attend medical school. The only negative reaction came from a college advisor who was puzzled by his decision and wondered how he would be successful. Having a variety of career interests, and still pondering medicine, Dr. Dowell committed to taking the MCAT despite having only a few months of study time. The feedback that he had received from the two deaf physicians along with his experience in shadowing his family physician, gave him more confidence in his decision to pursue medical school. During his candidate interviews, he proactively discussed his disability and shared what he had learned from the two physicians that he had previously contacted. He feels that he was able to diffuse concerns

and stereotypes by describing the techniques that he could use to be successful and by explaining that his uniqueness would be a benefit to the school.

His first choice, a medical school in the Southeast, offered him admission soon after his interview. He soon met with the disability support services office so that accommodations would be in place when the school year began. Soon after matriculation, he sent an email to his classmates and instructors, describing his background as a means to alleviate their anxieties about his disability. He soon developed a rapport with faculty members and students, who commenting that they appreciated his initial email and looked forward to learning more about helping those with hearing loss, a somewhat common condition.

Dr. Dowell did well academically, yet experienced a profoundly negative episode in which he was given a failing grade in his pediatrics clerkship. It was a surprise to him as he worked well with the resident and attending physicians and also did well on the clerkship examination. During a meeting with clerkship director, attended by his sign language interpreter, he was denied an explanation for his grade; instead he was told that he had no right to be in medical school and that he was only taking the place of someone more deserving. Dr. Dowell was appalled. After appealing the initial decision, he was eventually given a passing grade, the grade that he earned.

He found the transition to the clinical phase of the curriculum to be without obstacles as he had now been working with sign language interpreters who also transitioned along with him. He proactively discussed what he would need to be successful with the clerkship directors. Those clerkships with especially long hours were difficult since eye fatigue is an issue for those who are deaf or hard-of-hearing.

It was during his final year of residency that he decided to have a cochlear implant. He felt that it was the right time for him, although he had been doing well without it. A close friend, with similar hearing loss, had the surgery and found it to be effective. To him, it was worth the risk and he believed the technology had progressed enough so that it was the right decision for him.

Dr. Dowell decided that he would like to focus on family medicine, which has been a good fit given his varied academic interests and the diversity of care required of family practitioners. He has found that his patients do not really care about his disability; rather it is about the care that he is able to provide. Patients want empathy and compassion, something that he is uniquely able to provide given his experiences and personal understanding of disability.

Dr. Marie

Dr. Marie's interest in medicine was spurred by a childhood electrical accident in which she had her non-dominant arm amputated below the elbow. The electrical injury occurred between the first and second grade, requiring her to spend most of the summer at the hospital, where she underwent multiple surgeries. Soon after the accident, Dr. Marie elected to have her arm amputated despite given options that would have allowed her to keep her arm, although with less function. She knew that school was fast approaching and did not want to miss the start of the school year. Her parents were supportive of her decision.

She grew up in a small farming community, and medical care was not often readily accessible. She became self-sufficient, figured things out on her own, without her parents coddling her. The amputation occurred at such a young age that the muscle and

brain plasticity gave her an opportunity to recover perhaps more easily than an adult would in a similar situation.

Eventually completing two undergraduate degrees in four years, she never sought nor did she feel the need for accommodations. By this time, she had developed a tremendous capacity to adapt as needed. Her friends and family were very supportive of her decision. It was also during this time that Dr. Marie took a proactive approach. A surgeon, who had performed a foot surgery on her, helped her learn to suture with one hand, in his operating room, and under his guidance. A nephrologist, who had one hand, allowed her to shadow him in practice. The nephrologist offered valuable advice and helped her to figure out what she needed to do in order to be successful, explaining that she would need to rely on alternative methods and techniques, and would need to have a clear understanding on how to be successful prior to matriculation, otherwise it might be too late.

She felt that her best chance of attending medical school would be in her home state, which only had one medical school. During her interview, the admissions committee expressed concern that she would be unable to be successful in all of her clinical rotations, citing surgery as the most problematic. Dr. Marie countered that she could do the work and that she was not wasting their time. Her candor may have been misinterpreted as being confrontation or defensiveness. She was denied admission during two consecutive years, despite having the academic credentials. It was also during the first two interviews that she followed advice that she changed for her third interview. She was advised by the physician who had performed her amputation to wear her

prosthetic arm, which she had never been comfortable using, and she was advised to wear a skirt, again, something she was not accustomed to wearing.

The third year she applied to the same medical school was a vastly different experience. She wore a pantsuit, did not wear the prosthetic arm, and, made it clear to the committee that she was going to continue to apply until she was accepted. After three attempts, Dr. Marie was admitted to medical school. The transition was relatively easy; by this time she had figured out how to be successful with the use of one arm. In medical school, she has a few close friends who were very supportive and others who did not realize she only had one hand. In one particular instance, after two years of instruction together, a classmate apologized for not knowing she had an amputation, perhaps demonstrating that she did not present herself as disabled.

During the clinical portion of her medical education, site preceptors made sure that she receive the same opportunities as everyone else and helped to finding alternative means of performing procedures. Despite having a generally positive experience in clinics, there were a few difficult situations. One preceptor was generally unhelpful and was rather dismissive, an attitude that seemed to be directed towards women in general. Overall, Dr. Marie did not feel that she experienced any barriers in medical school, other than those typically encountered by females in the medical field.

Dr. Marie initially did a residency in psychiatry, yet became disenchanted with what she considered to be vanity care and decided on another path. She became interested in international health and preventative medicine and eventually earned her board certification in preventive medicine and public health. She later earned a board certification in addiction medicine. Her first position after her residency training was

with Veteran's Affairs. Additionally, she had a staff position at a medical school and hospital in the Southeast. As a clinician, most patients have responded well to her and often comment on how functional she is despite the use of only one arm. She feels that she has been treated differently by her patients, especially veterans, due to her gender, and nothing to do with disability. Although she feels empathy and perhaps has a better understanding of her patients' situation, she has little sympathy for those who want to exploit their illness or disability. She has little compassion for those who focus on what they are unable to do, rather than what can be accomplished.

More recent issues have arisen in her current employment. She has been denied accommodations in her medical officer position with a large federal government agency. This failure to provide accommodations has led to disability related repetitive strain injuries requiring surgeries and medical restrictions. She has been unable to return to work stemming from a loss of functional vision due to progressing corneal disease. Dr. Marie was not provided a reason for the denial of accommodations, which were a keyboard and monitor.

Summary

These individual portraits are presented to contextualize the themes that have emerged in this research. The participant interviews were opportunities for each individual to share the account of not only their time in medical school, but also their journey there and beyond to practice. Each participant has his/her own unique disability, and as we would expect, each has had a unique experience as a medical student. Despite all of their differences, several similar themes have emerged, which will be discussed in the following chapter.

CHAPTER 5: FINDINGS

The objective of this research was to explore the experiences of former medical school students with physical disabilities. I wanted to uncover the barriers and challenges that were encountered, find out how those challenges were met, and reveal how success was achieved. It is worth mentioning that since all of the participants of this study did complete medical school they had successes to reveal. Certainly, had this study included participants who dropped out of medical school, the barriers that prevented success would have been unique to their experiences, and would have provided a different perspective of the challenges that students with physical disabilities encounter. In addition to examining how success was achieved, I sought to gain insight into how the participants socially constructed disability within the medical school environment.

The interview conversation prompts were constructed with the explicit intention of answering these questions. The semi-structured nature of our conversations also allowed participants to share what they felt were necessary and relevant anecdotes regarding their experiences, not only in medical school, but also on their journey to the university, and life afterwards.

During the analysis process, a number of common themes emerged that highlighted the shared experiences among the participants. As one might expect, other experiences were not as common. The narrative of this chapter is organized such that the experiences of these former medical school students will be discussed in four sections. The first three sections of this chapter cover the participants' passage through medical

school: the journey to medical school, what they experienced during school, and their experiences in residency, and ultimately in their practice. It is my hope that by organizing the chapter in this manner, the lives of the participants in those three respective phases, will be better understood. The penultimate section of this chapter is a presentation of the themes that have emerged through the narrative of the participants' experiences. These emergent themes: support received from allies, the importance of when disability was acquired, and the perception from others that they do not belong, are seen across the medical school journey and are better presented separately. The chapter concludes with a presentation of how the participants, through disability, developed identity across their journey. Since I explored identity development from a perspective of social construction, identity development will be presented separately to emphasize the progression and the different points at which this development occurred.

Before School

Gaining entry to medical school is a difficult process, especially for individuals with disabilities; attendance for students with physical disabilities is less than 1% of the total medical school population (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996). During the journey to medical school, the participants experienced both barriers and support. In this phase of the journey, the participants demonstrated the ability to overcome obstacles and they exhibited a tremendous amount of creativity and perseverance in reaching their goals. These same themes of barriers, support, perseverance, and creativity are recognized throughout the entirety of their experience through school and to professional practice.

Interview barriers. The experiences of Dr. Marie are an illustrative example of the challenges that students with physical disabilities may encounter in gaining entry to medical school. Despite excellent credentials, she twice failed to gain admission to her in-state medical school, and upon reflection, Dr. Marie recalled how it was some advice that she had been given regarding the interview process that made her uncomfortable during her interviews. Dr. Marie, who grew up in a small farming community, and had her non-dominant arm amputated below the elbow after an electrical accident, described reaching out to the physician who had performed her surgery for advice. She described the recommendation she received:

And his advice to me was that I needed to wear a prosthetic, even though by that time I hadn't worn one in 10, 15 years. He said I had to wear an arm because they needed to see something. And I also need to be in a skirt suit because women wear skirts. Now mind you I was in my twenties. So he was probably in his forties or fifties at the time. And so with those two things I was very uncomfortable because I have functioned literally a decade without that arm. And so I know how to do things without it there. And when you put it on, or when I put it on, I'm actually less functional.

Despite some well-intentioned advice, Dr. Marie was asked to do something that she was not comfortable doing. Already uncomfortable with her presentation, she also encountered further difficulties with some of comments presented by the interview committee. During both years in which she was waitlisted for medical school, the committee expressed concern that she would not be able to pass her surgical rotations because of her disability. When told of their concerns, Dr. Marie explained that her

immediate reaction was to justify why she was not wasting their time with her application to medical school. She believes that the committee misinterpreted her actions, feeling she was being defensive.

Another participant, Dr. Mason, found the journey to medical school to be difficult as well. As an undergraduate, Dr. Mason, who has cerebral palsy, found that not everyone was supportive of his decision to pursue a career in medicine. He approached his undergraduate academic adviser, and expressed that he wanted to be a doctor and inquired how he should proceed. In response to his question, he was told that being a doctor is difficult, and that he should perhaps think about doing something else. It was only after he went to a third individual, his major adviser, did he find someone willing to help him in his pursuit of medical school. He subsequently did well on his MCAT and was offered two interviews at medical schools in the United States.

Similar to Dr. Marie, Dr. Mason also found some issues with the interview process. Dr. Mason described one such interview:

I applied and interviewed to a couple of schools, and I sat with the vice chair. And he said I know six people – it's a majority vote. He said, "I know six people that will not accept you because of your disability." And I said, "Well you can't say this. That's illegal." And he said, "Well yeah just because we say thank you doesn't mean we like you." And he said, "I would not have you walk down my halls with a disability. Nobody would ever come to see you. And you have a dog. People are allergic to dogs."

Although he did receive a few acceptances to osteopathic medical schools (DO) schools, he was rejected from every allopathic medical school (MD) school to which he

applied. At the time, not understanding the difference between the MD and DO degree, Dr. Mason wanted to attend a school offering an MD. As an individual with a disability, he did not want to earn, what he considered at the time to be a lesser degree.

The experiences of Drs. Marie and Mason demonstrate that in many ways the interview committee serves as the gatekeeper to medical school admission. Each medical school admissions committee deemed Drs. Marie and Mason worthy of an interview as each had presented solid applications with the requisite qualifications. Yet, it was during the in-person interview that Dr. Marie was initially rejected, and that Dr. Mason was unable to secure a position with a U.S. medical school. In both instances, their ability to be successful in medical school was doubted by the committees; however, as will be revealed, each was successful in their academic endeavors, both in the classroom and in the clinical setting.

Family and friend support, and service dogs. Universally, and despite obstacles, the participant found support from others in their journey to medical school. Similar to the situation experienced by Dr. Mason, yet perhaps less explicitly negative, Dr. Dowell, who attended medical school as a deaf student, also encountered discouragement from his academic advisor. His advisor questioned how a student who is deaf would be able to be successful, and that perhaps medical school was not something Dr. Dowell should pursue. However, Dr. Dowell described his family and friends as supportive and excited about his decision, if maybe a little surprised, as he had previously expressed academic interests in other areas.

Dr. Vermont, who as an undergraduate had a double leg and arm amputation after a severe electrical burn, also found great support from his friends as he reentered academic life. According to Dr. Vermont:

But certainly I had a very wonderful network of friends who were very supportive and helpful to me in every way getting back into school and getting through it. And including academic life and also my social life. And so friendships were extremely important.

During this re-integration to his academic and social life, Dr. Vermont also found support from his service dog. Dr. Vermont said, “And he [the dog] was extremely helpful to me getting through that experience. By the way, more emotionally than practically or physically.”

Dr. Vermont found additional support from his friends and parents when he decided to attend medical school. His mother, who had polio as a child and who has post-polio symptoms, has used a wheelchair for most of her life. Both his parents were supportive and were excited to see him challenge social boundaries. Having been around disability for most of his life, through his mother’s experiences, and then with his own experiences, Dr. Vermont had been aware of the issues surrounding disability, such as access and civil rights matters.

Dr. Mason also talked about the support that he received from his service dog. Just like Dr. Vermont, Dr. Mason’s service dog provided physical support, yet it was the emotional support that proved to be more meaningful. The emotional support was especially apparent when Dr. Mason received rejection after rejection from US medical

school, he remembered going home, crying and hugging his service dog and thinking that he would never be able reach his dream of becoming a doctor.

Interestingly, Dr. Mason spoke about watching the television program *House* and admiring how the main character of that show, Dr. Gregory House, himself disabled and using a cane, would brilliantly discover the most unusual diagnoses. Dr. Mason wanted to be Dr. House by solving the most unusual medical cases, just without the off-putting attitude. Where Dr. House used a cane, Dr. Mason found that his service dog as his living cane. As an undergraduate, he found the disability support office to be helpful, yet ultimately, Dr. Mason did not need much in the way of accommodations, as his service dog provided what he need, both physically and emotionally. For Dr. Mason, he found the greatest amount of support from his parents when he decided to attend medical school in the Caribbean. According to Dr. Mason:

My parents, heart of gold, ironclad support. But I remember listening to my dad. He said, "I would support you in anything." Now we also talk about it, we'll laugh about it. "I would support you in anything," he said. But I could not have imagined what kind of course it took and what kind of path it took to do this.

The support from his parent's was unconditional, yet his father later revealed that he perhaps had not anticipated what it would take for Dr. Mason to accomplish his goals. Dr. Mason also found support from his friends, not only in going to medical school, but also with his decision to attend school in the Caribbean. His friends knew becoming a doctor was his dream and were supportive of him following that dream, not matter where it took him.

Dr. Wayne, who is blind, also found support from a number of individuals as he pursued medicine. He explained that with his family background it would have been difficult for him not to have become interested in medicine. His father, a physician, and his mother, a nurse, both escaped Europe during the Holocaust. Dr. Wayne admired his father, not only as a physician, but also because of being heroic under horrible circumstances, and having saved a number of lives during that time period. As he grew older and his sight worsened, Dr. Wayne's parents wondered what he'd be able to do, and started him in piano lessons, which has become a wonderful part of his life. Despite his vision, Dr. Wayne still found support:

But at a certain point, I had an ophthalmologist actually gave his blessing to my going to medical school. He said, "I think his central vision is going to stay with him long enough if he wants to go into medicine and be a doctor." So I did.

Wayne also discussed his decision to transition from a potential career in music to medicine:

I mean I still play. But I don't think that I really thought about other things at that point. I mean being a musician—you know I was talented, but I wasn't Rubenstein of something. I mean and my piano teacher told me, "I'm glad you're going into medicine. Music is a lousy career. You're very talented, but music is a terrible career to have to go into." Which is true in some ways because there are so many fantastic pianists who don't have big careers. And there are lots of pretty good doctors who have decent careers.

When Dr. Wayne told others that he decided to go to medical school, he doesn't feel that anyone would have any reason to feel that he'd not be successful. At this point, he did

not have an obvious disability, as his vision was still relatively good. He applied to and was accepted to a joint BS-MD program, where after six years, he earned his undergraduate and medical degree.

Dr. Marie also spoke about the support she received from her parents when she decided to pursue medical school. This support was formed at an early age, in how her parents handled her injury and later her disability. It was after her injury that she spent the following six or seven weeks in the hospital. After her transfer from intensive care to the regular pediatric unit, Dr. Marie and her parents were presented with a number of options regarding her hand, which had by now displayed dying nerves. The physicians presented a number of options, which could have saved her arm, although without any assurance of having nerve function. The last option was amputation. Dr. Marie explained:

Mind you, I'm seven years old. I am sitting on the edge of my bed. I have my father on my left side. My mother is on the right side of me. And I look at the physician stone in the face, and I said, "School starts in two weeks and I'm not going to be held back for this. Take it off." And the physician's jaw dropped, and he looked at my parents. And my father said, "You heard her."

And with that, her arm was amputated with the full support of her parents. Her parents would continue to trust her to make similar decisions.

Dr. Marie explained that the nearest medical facility with physicians who would be able to help her with her arm was at least two hours from where she lived and because of that she did not go often. She further explained how her parents gave her freedom:

But with that, my parents would not do things for me. I was not coddled. And it

wasn't, "Oh we're so sorry for you, you're now the disabled child." It was, "hey if you want to do that, go figure out how to do it." And they would let me fail at things repeatedly until I figured out how to do them.

Those who knew her had little doubt in her ability to be successful in medical school, as those close to her knew her as "the most able-bodied person that they knew."

The participants shared the support they received in their journey to medical school. Friends and family seemed to have provided the most amount of emotional support. Yet, also evident is the support that some of the participant received from physicians, scientists, and others within the healthcare field. Although participants were able to draw upon the support received family and friends (and for some, their service dogs), the next section presents how they also found ways to be proactive in their pursuit of medical school.

Proactive and creative strategies. The participants each found ways to be proactive in their pursuit of medicine. Dr. Marie understood the importance of anticipating what would be required of her as a medical student. She found that those who supported her were giving her the tools she would need not to have an advantage over her peers, but to have an equal opportunity to be successful. Whereas her peers would have the use of two hands, she would have to learn how to do things with one hand. Dr. Marie described her third interview for medical school admission, the one in which she would eventually be offered a position in the same medical school she had applied to twice previously. It was during this third interview that she felt most comfortable. She explained:

What was different the third year is I threw the arm back in the drawer where it belonged. I wore a pantsuit. And I essentially made it clear to the admissions committee that I wasn't wasting their time, and that I was going to continue to keep applying until I was let in. Because I was confident that I could do this. Even though they weren't, I was confident that I would be just fine.

This confidence came in part by having learned some of the procedures that would be needed in the clinical phase of her education. During the time, that she had decided to attend medical school, she underwent a foot surgery. The physician who performed the surgery talked his way through the procedure, and later took her into his operating room and taught her how to perform a suture, in the only way that she'd be able to perform it, with one hand. Dr. Marie also found another supporter in a nephrologist who allowed her to shadow him in practice. This nephrologist, who also had the use of only one hand helped not only with how she thought about what she would need to be able to do as a medical student, but also with the physical aspects of the practice of medicine. Dr. Marie spoke of this support:

And his [the nephrologist] thought process again was also the same in that there were certain things that I was going to have to learn to do differently. And it would be a good idea for me to be able to have that thought process and to have some of those things figured out before I go there. Just in case medical school wasn't supportive of the fact that I wasn't going to be able to do the things the way everybody else was. So he taught me things like scratching for liver instead of percussion. So I know how to do scratching. So he taught me some of those things to help move that along.

Similarly, other participants found ways to be proactive in their pursuit of medical study, often beginning practicing and acquiring compensating strategies prior to submitting applications.

For example, Drs. Manheim and Dowell utilized similar proactive strategies. Dr. Manheim sent a letter of inquiry to dozens of scientists with disabilities seeking to learn how they were accommodated in their educational pursuits. Additionally he inquired how someone such as himself, an individual with quadriplegia, could attend and be successful in medical school. Not only was he able to use their recommendations, but he included the survey data, along with other materials, in his medical school application.

Similar to the approach of Dr. Manheim, Dr. Dowell, as an undergraduate student, also reached out to others with similar disabilities. He contacted two deaf physicians who he knew were in practice at the time. He reasoned that there are others who were able to complete medical school as students who were deaf, and he could certainly learn from their experiences. Dr. Dowell commented:

So I kind of sought their expertise and just getting some experience what their accommodations were like, what do they do, which his even like set the scopes. Just to kind of get some background about what are some of the hurdles that might be expected or that I'll have to overcome.

During the initial two years of his undergraduate education, with small class sizes and a desire to keep up with his studies, which included reading ahead if necessary, the only accommodation that Dr. Dowell utilized was having someone to assist with taking class notes. It was not until later on, when he began to enroll in more rigorous science courses, that he used a transcription service to ensure that he was not missing anything. He would

continue to use a transcription service in medical school. In fact, he met with his medical school disability support services office soon after admission to explain what he needed upon matriculation. Taking a proactive approach, Dr. Dowell presented a very detailed agenda of what he would need in order to be successful.

Also during the process of applying for medical school, Dr. Dowell displayed the forethought that has helped him navigate his environment as an individual who is deaf. He prepared extensively for his admission interviews. In describing his interview with the school where he would eventually earn his medical degree, it is evident that he was proactive about discussing his disability:

I kind of say upfront that I have a hearing loss. But this is what I do. This is what makes me unique. This is some of the equipment that I have found to be effective, and these are some other deaf physicians, and this is what works for them. So I kind of hoped to diffuse some of their concern, stereotypes. I think they were looking for people that are unique, that are passionate, that also seem to have their skill set that is appropriate for medical school.

Dr. Dowell proactively discussed his disability, while also explaining the techniques he found to be effective, and what current physicians were utilizing in practice. He also presented his disability not as a weakness, but as a diverse characteristic that perhaps established him as a unique candidate.

Dr. Vermont similarly proactively discussed his disability during the interview process:

I felt like I needed to frame that [his disability] as a source of strength, a source of empathy, and to make it clear to the prospective schools that I was open to talking

about it. That I wanted to see it as a creative work in progress and we could problem solve together.

He sensed that admission committees were appreciative that he proactively discussed his disability, and that he created a comfortable environment to discuss an issue that others often find difficult to discuss due to legal or ethical concerns. In their proactive discussion of their disability during the interview process, both Drs. Dowell and Mason, helped to educate the admissions committees not only on how they lived and performed with their respective disabilities, but they also highlighted how they could be successful. Admissions committees make a determination of whether the candidate is likely to successfully complete the medical school curriculum and obtain a residency position (Albanese, Snow, Skochelak, Huggett, & Farrell, 2003). When viewed as the gatekeepers, it was important for the admission committees to hear how the candidates planned to be successful.

Participants demonstrated a tremendous amount of ingenuity in identifying ways to support their own journey to medical school. It was with these creative and proactive measures that they anticipated, and often learned what they would need to be successful once they matriculated. This section presented the experiences of the participant prior to medical school; the following section explores their experience as medical students.

The Medical School Experience

Upon matriculation to medical school, each participant was presented with a unique set of challenges. However, as one would probably suspect, those challenges came in many forms, occurred at different times during the medical school experience, and

were often related to their respective disability. Ultimately, all the participants successfully completed medical school.

Overcoming physical and social challenges. The participants experienced challenges as a result of their respective physical disabilities; however, each challenge was met and ultimately overcome. But, at the root of many of the challenges facing the participants in medical school were discriminatory attitudes or an underestimation of their abilities. The challenges facing participants can be grouped in two distinct categories. First, the participants' physical disabilities were limiting; especially in an environment in which there are rather strict technical standards. However, each participant successfully completed medical school, residency training, and eventually moved on to professional practice. Ultimately, each participant learned how to overcome those physical limitations, through a coalescence of adaptation, creativity, support from others, and accommodations.

The second category of challenges, informed by the social model of disability (Oliver, 1990), emphasized the ways in which the participants were treated by others. Although the participants did find others who were understanding and supportive (to be discussed later in this chapter), the participants also experienced discrimination, lack of support, and an underestimation of their abilities. Despite the unhelpful and often hostile treatment from others, the participants persevered, and ultimately reached their goals.

Physical barriers and adaptation. Dr. David, who has heretofore been absent from this chapter's discussion of findings, acquired his disability during his final year of medical school. His journey through the first few years of medical school is perhaps unremarkable within the context of this study. He was away from school, interviewing

for a residency position, when he awoke, and realized that something was different; he was not able to move his head, neck, or shoulder. In one of his clinical rotations he had seen a patient with dystonia and recognized the similarities immediately. Dystonia is a condition characterized by involuntary muscle contractions, often resulting in abnormal posture. As his disability was newly acquired, the fourth year of medical school was much more physically taxing, not only because of his disability, but also because of his treatment. He explained that he was on various muscle relaxants, and he underestimated the amount of time needed to study, which resulted in his failing the Step 2 examination the first time it was administered to him.

Reflecting back, he believes that test accommodations may have been available to him, yet at the time, he did not pursue requesting assistance. When he registered to take the examination, he did not have a disability, and, at the time, testing accommodations was not something he had considered. Although he solely places the blame of the examination failure on himself, he realizes that he failed because he was dystonic and that his medications were not yet optimally effective. Upon learning of his failure, his medical school treated him as they would any other student in a similar situation. He was told to make sure his medications were adjusted and to register and take the examination again. When he took the exam a second time, he was still nervous, but attributed his apprehension to normal student fear. By this time, his medications were stabilized; he was confident that he knew the material. Ultimately, he was successful during this second attempt at the examination.

The experiences of Dr. Wayne are perhaps similar to those of Dr. David, in that each did not utilize assistive devices and each has a disability which would only become

progressively worse post-graduation. Dr. Wayne, who during medical school did not utilize any sort of assistance devices, a cane or otherwise, explained that although his vision impairment was not as severe as it is today, it did present some issues. He spoke about his vision and how he made some adjustments when assisting in surgery as a student:

So I learned certain peculiar techniques. If you direct the light down into the abdominal cavity when you're doing say gallbladder removal or something like that, the light is very bright. It goes right down there. I learned that since as a medical student you're mostly holding retractors and cutting sutures, I learned that the easy way to get down and cut a stitch that they've done deep in the abdomen is to take the scissors, you run it down the suture material, and then you go *boomp*, there's the knot, snip. I was doing it as much by feel.

Later, when he did his residency training in physical medicine and rehabilitation, Dr. Wayne was able to perform all of the necessary procedures, such as inserting IVs and reading X-rays, yet he still found alternative methods to perform clinical tasks.

In particular, Dr. Wayne became known as the physician who could hear certain sounds from an EMG machine, which is a test for problems in muscle function. He found that he could identify the machine indicators, through specific sounds, without needing to see the screen. He does not necessarily feel that his other senses developed a greater sensitivity due to his impaired eyesight, instead explaining, "I simply had to depend on it in different ways, so I used it. So it was just one of those things I developed." Dr. Wayne relied on an expanded use of his other senses to accommodate for his failing sight.

For example, Dr. Wayne recounted how he relies on his other senses when performing physical examinations:

I can feel skin temperature. I can feel if there's a tremor. I don't even have to totally undress a patient, because if I wanted to see how their spine moved when they're bending, I put my hand on the small of their back. And as they bend, I simply feel. I can feel that a normal curve is supposed to go away.

It is through a substitution of senses that he is able to perform the examination and as he explained, "Most of vision rehabilitation for people who have lost most or all of their vision is either tactile substitution or auditory substitution." Dr. Wayne also offered an example of examining someone with an underactive thyroid. Again, using tactile substitution and auditory substitution, Dr. Wayne is able palpate the thyroid gland, can feel if it is enlarged, if the patient's skin is thick, or if their deep tendon reflexes are slow. He can hear if the patient's voice is low and horse, if they describe hair loss, or feeling cold. He summarized, "So you can make that diagnosis without seeing their face, you know?"

The use of alternative techniques to acquire patient information or perform clinical tasks is recurrent throughout the experiences of not only Dr. Wayne, but of the other participants. Almost universally, the members of this study did not experience physical barriers during the first two years of medical school, which is typically the didactic portion of the curriculum. It is during the clinical years where physical barriers most often arise. Dr. Vermont, an individual with a tri-lateral amputation found the transition to the clinic to be as challenging as it is for every other medical student. However, he also experienced the added challenge associated with increased standing and

walking, difficult for him given his amputation. For example, in a surgery rotation, medical students may be expected to stand for many hours, perhaps holding a retractor or simply observing a procedure. He made it clear that he would need a stool, to sit as needed, which he was given. Despite some challenges created by his physical condition, he found every challenge to be surmountable.

Dr. Mason also spoke about the challenge of standing for long periods of time in certain clinical rotations, such as surgery; especially not having his service dog available to assist him. He explained how his dog helps him to maintain balance, and essentially acts as a living cane. When he is standing for long periods of time, Dr. Mason is able to offload some of his weight on his dog's shoulders, or if he falls forwards or backwards, his dog counterbalances his movement, not allowing him to fall. In this manner, the doctor is able to stand for longer periods of time, without anyone knowing that he uses his dog to bear some of his weight. Interestingly his dog also has the ability to body-block individuals who may be coming in too fast, and those who could potentially knock Dr. Mason off balance are effectively prevented from doing so.

Dr. Dowell also found that it was also necessary to be proactive about what he would need in order to be successful. Soon after he was admitted to medical school, he met with the office of student disability services to arrange his accommodations. Initially he did not utilize sign language interpreters, yet did avail himself of this resource when classroom instruction gave way to a more mobile educational experience, such as small group meetings or rounds in the hospital. During medical school was the first time he extensively used sign language interpreters in an educational setting, which he found to be very helpful.

Despite anticipating issues with his surgery rotation and having never really considered becoming a surgeon, Dr. Dowell found working with the surgeons to be a richly rewarding experience, aided by both the interpreters and the surgeons. He found a great rapport and added the following:

But the surgeons—most of them were really cool. And they'd say, "Hey let's go get that surgery and we can write on the patient, the gown," and stuff like that. So sometimes they would write, sometimes the interpreter would sign and stuff.

They were really, really helpful.

Dr. Dowell found the surgeons to be helpful, and by writing on the gowns of the patients, he was able to better understand the medical procedures.

Although surgery proved to be a non-issue, Dr. Dowell described another challenge that was directly related to the physical aspect of his disability. During those rotations that called for long hours in the clinical setting he found that fatigue, specifically eye fatigue, to be an issue. Reading lips and paying attention to sign language interpreters for long periods of time was a challenge. Other challenges occurred when verbal instructions were given and his gaze was elsewhere, such as when using a microscope. In these instances, he found himself watching the instructor, and then quickly glancing into the microscope to locate what was being discussed. To meet these challenges he found it necessary to be proactive in educating others what he would need so that he could be successful and in pre-learning the material and reading ahead, as to not fall behind in his studies.

Utilizing assistive devices was a period of trial and error for Dr. Dowell. The stethoscope he brought to medical school did not really work out, and when he switched

to another, it was boxy, and loud; so loud that everyone could hear themselves as it played through the device. He explained:

So that was probably unique for me, in that I had to kind of do this trial and error and I worked with the cardiology and physiology department to practice the heart sounds. So that was something on my own to kind of practice

Other participants also described utilizing assistive technology to overcome physical limitations. Dr. Manheim discussed the various assistive devices he employed as a medical student to address issues of mobility. It was during the first few years of medical school that he used a specialized wheelchair, allowing him to stand up and work at the lab in gross anatomy. Along with the specialized wheelchair, he used orthopedic braces in his hands, tenodesis splints, which allowed him to use a scalpel and tweezers to participate in dissections.

Assistive devices were helpful for some, yet not everyone utilized adaptive technology to be successful. Dr. Marie, for example, learned to suture with one hand prior to matriculation. She spoke about training in the suture clinic:

But I actually sutured faster and better than most of my colleagues, and part of it was because I learned how to do that the way I was going to need to do it, and then I made sure that I was proficient in it.

As her classmates initially struggled to get their needles in to place and in the correct position, Dr. Marie had already sewn up the opening and was finished. Instead of using adaptive technology, she compensated for her physical disability by learning how to adapt procedures and often developed her own technique that often proved more advanced than her classmates. Dr. Marie, who never asked for formal accommodations,

became proficient in discovering alternative methods, often relying on trial and error, and practicing until she mastered the task. Not everything she tried helped. For example, the doctor tried to use a set of stainless steel tools and a stainless steel arm to take into the operating room; however she found it to be unhelpful and concluded that she could actually do more without it.

Despite physical barriers that arose, the participants were able to be successful. This success was achieved by a variety of measures and strategies. As revealed in their stories, the participants were creative in the adaptive measures they employed. Some utilized assistive technology, such as a specialized wheelchair that allowed Dr. Manheim to stand when performing dissections. Others learned necessary skills they knew they would need, such as when Dr. Marie learned to suture with one hand and, in the process, developed competence that surpassed that of her classmates.

Even though the participants found ways to overcome the barriers presented by their physical disability, not every medical specialty would be a possibility for residency training or practice. Dr. Marie, who would have otherwise pursued surgery, recognized the potential liability that may have been present:

Given my options, if I had two hands, I can guarantee you I would be an orthopedic surgeon. Hands down. Power tools and stainless steel in the OR—yes, that would have been me. But knowing that that's a liability and I'm not willing to put my patients at risk—I also had a strong education in mental health.

Dr. Marie chose to further her study of psychiatry, as it did not involve physical procedures, yet became disillusioned with that particular area of medicine. In the end, she eventually studied preventative medicine with health and addiction. Similarly, Dr.

Vermont did not have an interest in pursuing surgery or another specialty where having one hand would prove to be especially difficult. Whereas his attendance in medical school was a challenge to the status quo, he was not interested in pushing that particular boundary. Initially Dr. Vermont felt that he would study physical and rehabilitation medicine, but eventually settled on palliative care.

Dr. Wayne recognized that his vision would only become worse over time, and found choosing an appropriate medical specialty to be a particularly stressful period in medical school because he knew there were certain areas of medicine would be particularly difficult or impossible. Eventually, he decided on physical medicine and rehabilitation:

I knew that I was not going to be able to do certain things. I wasn't going to be able to do things where I was going to have to go around and drive at night. I wasn't going to be able to do stuff where I needed absolutely flawless vision, like surgery. So I knew that there were certain fields where you have to do certain procedures [and my limited vision would be a liability].

During medical school, Dr. Wayne could perform certain procedures, but he knew that he would have difficulty later in life as his eyesight worsened. He knew that he could not be a general practitioner like his father, who made house calls, delivered babies, assisted in and probably performed minor surgery. Dr. Wayne stated that he would not have been able to do all of those things.

Although their physical disabilities presented challenges, each challenge was surmountable. Overcoming the discriminatory attitudes of others proved to be the greater

challenge. Just as the participants found ways in which to be successful despite their physical disabilities, they also found ways to overcome the attitudinal obstacles of others.

Confusion, underestimation, and discriminatory attitudes. Dr. Dowell described an especially difficult situation he had with a clerkship director, who is the individual responsible for overseeing the training and education of medical students in their respective clinical settings. Although he had a wonderful experience in this particular clerkship, developing a great rapport with the residents and the attending physicians, and doing well on the clerkship examination, he was given a failing grade by the clerkship director. The grade was the first academic failure he had ever received. Initially he was frustrated and angry, as he knew that he did well in the rotation. He knew that he should have received a passing grade so he requested a meeting with the clerkship director, which was also attended by his sign language interpreter.

The meeting started off with an exchange of pleasantries, and the clerkship director enquired as to what he could do for Dr. Dowell. Dr. Dowell requested an explanation on how his grade was calculated, yet the clerkship director refused. He looked at Dr. Dowell and said, “You’re a deaf student that shouldn’t be here. You stole a place from another student that would have been a successful doctor. And so we’re wasting time and effort on you.” Dr. Dowell was livid and did all he could to not say something that he would possibly later regret.

Dr. Dowell later contacted and met with the dean, and it was agreed that the clerkship director was inappropriate, not only with the grade that was submitted for Dr. Dowell, but also in his behavior during their meeting. Eventually, Dr. Dowell was given a passing grade, the grade he had originally earned. Ultimately the clerkship director was

only given a cursory reprimand. This particular clerkship subject was an area that Dr. Dowell had previously considered for future training; however, he noted that this experience probably affected his choice of specialty, in that he moved in another direction. Dr. Dowell said that the entire experience left a bad taste in his mouth, and after receiving the passing grade that he earned, he described not really caring anymore as he had already moved on.

Dr. Dowell often spoke of the importance of education as a means of helping others better understand his disability. When he first matriculated into medical school, he found that although everyone was initially pleasant, conversations with classmates tended to be a bit terse. He would say “hi,” they would say “hi,” and the exchange would, “kind of fade out.” He assumed, based on his prior experiences, that his classmates would see his hearing aids and believed that it would be difficult to have a conversation with him. He decided to send an email to his class, and also his professors, explaining his background and his hearing loss. He explained to his classmates, “If I don’t hear you, I’ll just let you know, and just have a normal conversation. I’m just like anybody else.” He felt the email was effective in diffusing some of the anxieties his classmates and professors may have had about interacting with him, as these peers and instructors may never have encountered someone with a profound hearing loss. Dr. Dowell gave another example of how he helped others understand his disability. In this instance he helped his instructors learn how to interact with him in the classroom:

And I would tell them you can ask me questions. Don’t feel like just because I’m deaf [that you] don’t tempt me with questions. And that seemed to resolve it very quickly. And they’d say, “Oh okay.” And they’d ask me a question and I would

answer appropriately. And they'd be like, "Oh okay he seems to be with it." So most of it was just simple education.

However, Dr. Dowell did not have universal success with the proactive email, as demonstrated by the situation he experienced with the clerkship director.

Dr. Manheim also experienced difficulties with negative attitudes as a medical student, especially when completing his clinical requirements. Although he did well clinically, he recalled:

But clearly there were a couple of attendings who thought I had no business being in med school and didn't have the *cajones* to say it to my face. So they did their best to undermine me in a less direct way.

Specifically, there were two attending physicians on two different clinical rotations who were dismissive of his medical school endeavors, although neither directly addressed Dr. Manheim. Certainly neither was supportive, "but they didn't have the character to say it to my face. That was a disappointing I think a moral reflection on their deficiency rather than my own." Dr. Manheim described how he dealt with the situation:

I ignored the implicit negativity and focused my efforts on performing well, on doing meticulous exams. I felt that I was held to a higher standard on those rotations. And so I did an extra meticulous job on all the exams. Alas to no avail.

Despite the attitudes he experienced, Dr. Manheim focused on performing well, toughed it out, and was able to successfully earn passing grades for these two clinical rotations. Although he did his best clinical work possible, he could not change the attitudes of the attending physicians. His best efforts notwithstanding, the physicians had already decided that Dr. Manheim was unworthy of medical education.

Prior to his clinical work, he did not encounter the same hostile attitudes during the first two years of medical school, the years spent in the classroom. The basic sciences faculty in the classes were generally supportive, yet it was once he was in the clinical setting did he experience some negative attitudes. Dr. Manheim attributes his success, in part, to stubbornness, determination, and a resolve to hold himself to a higher standard. These attributes are evident in how he reacted to the situation with the attending physicians with discriminatory attitudes.

As a medical student, Dr. Vermont did not experience the overt hostility from attending or resident physicians that Dr. Manheim described; however, there were instances where he was treated differently by patients because of his disability. It was during his OB/GYN rotation that he found a patient who was dismissive and treated him, “in the sort of old-school way that people with disabilities used to be treated much more you know, as sort of Frankenstein characters.” He described this patient encounter as harsh, yet it was the resident physician who took an immediate stand to shut the patient down. “So, it was a harsh, gnarly little moment, but it was also one that was handled so beautifully by my superior at the time, that you know, it was fine.”

It was also during his OB/GYN rotation that he assisted with the delivering babies. Often he was there to catch the baby and described a reaction that he received, “Of course they look at you like, ‘you’ve got one hand and you’re catching my baby?’ So there were a couple of weird looks, but we always had so many people around it was never an actual problem.” To be fair, I imagine many new mothers are apprehensive regardless of who is supposed to catch the baby, yet this is a perhaps a good example of a situation in which his abilities were underestimated or misunderstood.

Dr. Marie also experienced an unhelpful preceptor within the clinical setting. However, she realized that this individual seemed to be dismissive of women in general, and appeared to dislike all of the women within her class. However, related to disability, there were instances where Dr. Marie sought assistance with the alternative techniques she had learned and her instructor made it very clear that he was not interested in helping. To ameliorate this situation, Dr. Marie spent as little time with him as possible; she did not rotate with him, instead directing herself to others who would be supportive.

A particular instance, which occurred during her first residency in psychiatry, indicated that there are individuals who underestimated her abilities. She explained that she was required to do lumbar punctures in the lab. Dr. Marie described the situation:

And when I arrived there, the lady looked at me. And she said, “Oh you know what? I’m just going to do them, and we’re going to sign off on you.” And I told my program director. And I said, “I’m sorry but that was really inappropriate.” She didn’t even give me the opportunity to try to do the lumbar puncture. She just signed off on me and let me go.

Underestimation of the abilities of the participants was a recurrent theme in the findings. Dr. Wayne has found that others are often surprised at the tasks that he is able to accomplish; even what he would consider to be fairly mundane daily activities:

One of the things that astounds me is people are sometimes flabbergasted that I can make a phone call without looking at the keypad. I’m thinking, I’m being a doctor and I can’t see. That’s impressive. Doing a phone call is not a big deal. People will often ask him if he dictates when using a computer, which he does not; he types like everyone else. Dr. Wayne continued, “But people do have a tendency to

underestimate what I person with a disability can do.” He emphasized that for him, it was not so much the physical or structural barriers that were problematic, but the attitudinal barriers that he encountered, typically in the form of the low expectations that others have for him. “Of course when you break those expectations, people are mightily impressed. Sometimes more than they need to be.”

Dr. Manheim also addressed this issue of underestimation and how even those within the medical community tend to have lower expectations of the abilities of individuals with disabilities than the individual themselves:

Well I think it’s the stereotype that somebody with a physical disability—they’re not expected to fill the social role of having a career and such. Regardless of the technical sophistication that they have, they still languish under the social mythology that disability necessarily implies a lifetime of welfare, pity, and medications. And I think related to that is the expectation on the part of many healthcare providers that somebody with a disability necessarily has a low quality of life.

Dr. Manheim, on the other hand, held higher expectations for his patients than what he observed among other healthcare professionals. This attitude began in medical school and continued into his practice. The expectations that the participants held for their patients will be discussed in the section of this chapter devoted to life after medical school.

Although most of the participants expressed support from their classmates, acceptance was not universal. Dr. Mason recalled a conversation with a classmate who told him. “I know you’ll be top of your class, but I’ll never come to you because of your

legs and your disability.” He had others tell him that he should not be attending medical school and that he would never make it to graduation. Despite open hostility from a few students, he found individuals in his medical school to be generally supportive.

Attending medical school in the Caribbean did present some unique challenges. Without the ADA in the Caribbean, Dr. Mason found little legal support for disability accommodations. Yet, it was some of the cultural challenges that proved to be most difficult. On this particular island, individuals with disabilities were typically sent off the island to receive better treatment. Consequently, the residents of the island had never seen an adult with a disability as severe as his and had never seen a service dog. He found that, at least initially, people thought they would “catch” cerebral palsy, that it was a communicable disease. Additionally, residents of the island thought his non-vicious service dog would eat their goats! When trying to secure a place to live, he found only one person who would allow his service dog to live inside the home, as very few people in the country allowed an animal indoors.

Transition from classroom to clinic. For some, it was the transition to the clinical setting that combined societal challenges with the physical obstacles rooted in their respective disability. The hostility that some of the participants experienced in the clinical setting demonstrated some of the challenges associated with the transition from the classroom to the hands-on portion of the medical curriculum. In the clinical setting, some participants faced overt discrimination, found there were those who felt they did not belong, or underestimated their abilities to be successful. For instance, Dr. Dowell experienced a clerkship director who told him that he had taken the place of a more worthy student. Dr. Manheim endured the implicit attitudes of two attending physicians who felt

that he did not belong, and Dr. Marie experienced a preceptor who expressed no interest in helping her learn alternate techniques to perform medical procedures.

It is typical of most medical school curriculums that the first two years consist of the basic sciences curriculum, and it is in the final two years where students train in the clinical setting. Although this is a profound transition for most medical student, it can be especially challenging for students with physical disabilities. Compared to the final two years of medical school, the first two years of classroom instruction more closely resemble what students experience as undergraduate students; most instruction is in the classroom.

In addition to experiencing discriminatory attitudes, the participant also had to contend with physical disabilities, while also attempting to be successful in clinical training, which for many was a unique setting they had heretofore not experienced. For some, the transition was a mix of relief and anxiety. Dr. Wayne described his transition:

I was relieved basically because then of course I could start getting rotations, and I think I did better. I mean some of the rotations were more complicated for me. I mean the obstetrics, delivering babies. It was a bit more nerve-racking because you had to do a little bit more technical stuff. I mean I was afraid I was going to drop the baby. But I suspect I'm not the only one. Never did.

Surgery was also another area of initial concern. He did not pursue a rotation that would have involved extensive surgical training, instead he opted to observe, performed some of the more simply procedures like suturing or biopsies.

“Terrifying” is how Dr. Manheim described his transition to the clinical portion of his education. He viewed surgery and internal medicine as the two “big rotations”

required during the third year, and was fortunate to find supportive faculty in both areas. Similarly, Dr. Vermont described the transition as challenging, as it is for most medical students, with the additional layer of the physical requirements. It was during this time that he experienced chronic pain and found it to be rather tough on his body. However, he found faculty to be supportive. He explained:

So it was challenging on multiple planes, but it was very clearly – these were definitely surmountable challenges. And I didn't have any asshole professors setting me up to fail, making me do things they knew I couldn't do. So no one played weird, dumb power dynamics. No one went out of their way to.

Dr. Dowell also found clinical faculty to be supportive as well. In fact, in the clerkships he anticipated as being challenging, such as surgery, he had great experiences. He explained that his initial apprehension faded after working with the preceptors:

I had a great time in surgery, and I think it was one of my initial meetings to give them a head's up I'm going to be joining your rotation, I have hearing loss, and this is what I do. And of course they're going to be like this is not going to work. But as soon as I work with them in the clerkship, everywhere I had a great time.

Although he never anticipated being a surgeon, he found the rotation to be a fun educational experience.

Despite the obstacles experienced by participants, each found ways to be successful. Some of those obstacles were a result of their physical impairment, which was overcome by alternative methods of acquiring information or performing clinical tasks. Others faced overt discrimination that while challenging was also overcome. The participants offered insight to how they were successful.

Finding success. I have previously discussed some of the ways the participants found success in medical school. Some used alternative methods to acquire information or perform clinical assignments. For example, Dr. Wayne relied on touch and sound to perform clinical exams or utilize diagnostic equipment. Dr. Dowell found the right stethoscope through trial and error, and Dr. Manheim utilized a wheelchair, which allowed him to stand when performing dissections. Others emphasized the importance of being proactive. Dr. Vermont informed his clinical sites what he would need, such as a stool, when in his surgical rotation and Dr. Dowell sent an email to his classmates and instructors about his disability. The following section presents the other ways in which participants found success. The participants reviewed how their individual perseverance allowed them to be successful in their quest for their medical degree.

Self strengths. The participants displayed a tremendous persistence and at times, an independent spirit in their pursuit of medical school. Dr. Mason attributed his success, in part, to his refusal to take “no” for an answer. He described some of the personal characteristics that enabled him to successfully complete medical school, “Perseverance without a doubt, determination, are going to be your two biggest ones. And I just think my faith has been a huge piece of it.” He further discussed how important faith has been to him:

And that unrelenting faith of trusting in what I can’t see—I mean if I knew what I was going through from all my life from zero to 30—if I knew I was going to do or what I was going to have to experience, I’d never do it again. Ever. To this day. Ever. I’m so thankful that I did not know. But also so thankful of the support of one, my faith, my family, and some critical friends. Because I think

that, that's—and it's the unrelenting belief, not being embittered. You cannot harbor bitterness and get this done.

In addition to talking about the importance of faith, and support from friends and family, Dr. Mason mentioned some of the personal attributes (e.g., perseverance and determination) he relied upon to be successful in medical school. Other participants shared similar personal attributes.

Dr. David, who acquired his disability during his final year of medical school, explained how he was successful, “I powered through everything. I was in very good physical condition at that time, still, and my pain tolerance was relatively high. So I just kind of bulldozed my way through things.” He further described some of the personal characteristics that carried him through this difficult period:

I don't stop. I don't know if that makes sense. I'm not one of those people that I've had enough experience where I got knocked down before—whether it was academic or physically—and I would always get back up. I'm a small guy. I would get into—I got picked on a lot, if that makes sense. And I just, I guess pride, but I guess also like I'm not gonna lay down for anybody or anything.

Dr. Manheim also spoke of the importance of determination. During the two clinical rotations where he experienced negative attitudes from two particular attending physicians, he demonstrated a resolve to ignore the negativity, and prove his credibility as a clinician.

Dr. Marie, who acquired her disability at the age of seven, did not find her disability to be the source of extra stress during medical school. She explained that she did not find medical school to be a period of rich self-discovery regarding dealing with

her self-conception of her disability, as she had already learned much about herself prior to matriculation. She said that by the time she attended medical school, she had already been well-adjusted. “I had already figured out much of the things that I needed to figure out. And I had already adjusted emotionally to be able to let a lot of these things roll.” She knew who she was and what she could and could not do. She explained, “I mean I’ve got skin like a rhinoceros because it happened when I was a kid.” For Dr. Marie, it seems that her success in medical school was a confirmation of what she had already learned about herself prior to matriculation. She felt personally, it was the inner confidence in her abilities, and determination to not let anyone or anything stand in her way, that enabled her to be successful.

Dr. Vermont also spoke of a confidence that was developed during his time as a medical student. For him, how he came to understand his own disability was a source of confidence; because of his unique experiences as a patient when he was an adult, he understood that he possessed a unique perspective:

I knew I was coming from this grizzled place of toughing it out as a patient, and I knew things that my professors did not even know about that. And I used that to my advantage in a way that just kept me in a place of confidence.

Being proactive about what he needed, and continuing to be upfront about his disability also proved to be a successful strategy for him. He seemed to alleviate awkward situations as a result of taking early actions. Dr. Vermont was not interested in pursuing surgery or another specialty in which having one hand would present difficulties. As a result of his own self-selection out of particular areas of specialization, no one approached him explaining that he may not be able to pursue certain specialties.

Dr. Vermont also revealed some interesting details about how he approached medical school, which also contributed to his success. Again, his disability played a critical role. It was his own brush with mortality that spurred his interest in medicine. Unlike many of his classmates, he had entertained other interests and only came to medicine after he had already finished his undergraduate education. Certainly, there were other vocations and interests that he had considered. He explained:

I had a certain perspective that, yeah, medicine is cool, medical school is great. If it works, great. If it doesn't, there are many other things to do. So I think that attitude of sort of a balance and levity helped me a lot. And not feeling stuck or trapped like if I don't like this, well I've got to do it because Mom and Dad want me to. Or if I can't do this, well I've got to keep trying. I could leave it. And I think that's a very potent place to be coming from—if you're willing to walk away from something, if it doesn't have too much power of you. And I think that helped me too, knowing I could always put it down and it'll be ok.

He further explained that, despite this attitude, he still had high expectations for his career. As a result, he placed pressure on himself to be successful, yet because of his injuries, he was careful to not be too hard on himself. He found that his narrative, of disability, and of mortality, was compelling and saw it as an advantage. Rather than dwell on the disadvantages, he became well versed at looking for and reapplying the advantages that came from his experiences. He found this attitude to be therapeutic and it served him well in medical school. It was in medical school that he discovered a different kind of confidence, and a particular empathy. Dr. Vermont found that these

could be strengths that “led to a renewed, different, and very durable self-confidence,” which he described as being “hard-earned and very welcome.”

It is interesting to compare the experiences of Dr. Marie with Dr. Vermont. Dr. Marie seemed to have a singular pursuit of medicine, from applying multiple times, to learning medical procedures prior to medical school. It was at a very early age that she decided to pursue medicine, having been inspired through the care she received as a child. On the other hand, Dr. Vermont came to medicine relatively late. Even after the acquisition of his disability he was still undecided on what he wanted to pursue vocationally. He came to realize that a career in medicine would allow him to leverage his experiences as a patient to provide care to others. Despite the differences in how Drs. Marie and Vermont engaged in the pursuit of medicine, each did their best to be successful. Although Dr. Vermont had not had an initial singular determination to study medicine, he still placed pressure on himself to be successful. A variety of motivations spurred participants to pursue a medical career.

Dr. Dowell, just like Dr. Vermont, was proactive in discussing his disability with others and in explaining what he would need to be academically successful. Although the burden may have been on him, he found the extra work to be necessary to help others feel comfortable around him. It was really incumbent on him to be proactive in requesting the needed accommodations. He found that by being proactive and showing his instructors that he was enthusiastic, and that he wanted to be there to learn as much as he could from them, was helpful. His motivation for attending medical school was not unlike that of his non-disabled peers; he was there to learn as much as he could so that he could be a good doctor. It was his positivity that helped others to embrace him.

Mutually supportive. In addition to relying on personal characteristics to be successful, many participants also experienced support from within the medical education community, including instructors and fellow students. Interestingly, this support was reciprocal as the participants supported their classmates as well. Much of this support came from what the participants were able to teach their classmates about disability, through conversation about their experiences, or by demonstrating that they could be successful in medical school.

Dr. Wayne, who had previously mentioned that his classmates remember him for how well he played the piano and for his deteriorating eyesight, recalled also being treated well in medical school by both classmates and faculty. He was part of a small group of students within his cohort who were enrolled in a six-year joint undergraduate-medical degree program. There was a mutual support among his classmates, each trying to help one another be successful.

Dr. Marie also found her classmates and instructors to be generally supportive and interested in her. Her matriculating class was the first to go through a new curriculum in which clinical encounters were instead initiated within the first year versus the historic third and fourth years of medical school. She found her classmates and instructors to be willing to help, and that those who did not care were in the minority. Dr. Marie described an interaction with one of her classmates which is perhaps illustrative of how others viewed her:

So again most of them [classmates] were exceptionally supportive. The shining case example—one of my classmates, she sat down next to me. I think it was toward the end of our second year. And she said, “I really have to apologize to

you.” And I said, “Why?” We hadn’t had any adverse encounters. There’d been no fighting. None of that stuff. And she said, “I just noticed that you only have one hand.” She said, “I’ve been sitting in this classroom with you for two years.”

This encounter was perhaps not surprising as Dr. Marie explained that she does not present herself as disabled, and does not make a big deal out of only having one hand. She mentioned that, “I am most commonly referred to as the most able-bodied disabled person that people know.” She further explained that those who know her do not view her as disabled, because she does not focus on her disability nor does she draw attention to it.

During the third and fourth years, where students are primarily educated in the clinical setting, Dr. Marie found her clinical instructors were also supportive. She related that these instructors made sure that she received the same experience as everyone else, and that they were willing to offer assistance if it was needed. Furthermore, if she was physically incapable of doing a procedure in the traditional manner, her instructors were more than willing to help her find an alternative technique.

Dr. Mason found uneven support from his classmates. Some felt that he should not be in school, and others treated him as they would anyone else. Those classmates who were helpful assisted him whenever he needed it. Despite attending a medical school in the Caribbean, and without legal support from the ADA, he found the instructor and administrators at his school to be supportive. Although his school may not have had the same resources as U.S. based medical schools, Dr. Mason felt supported. When he eventually went to the U.S. for clinical training for this final two years of medical school,

he found that he was warmly received, with the exception that was previously noted with a resident physician in one particular rotation.

Dr. Vermont also found some of his classmates to be genuinely interested in his experiences, which he discussed comfortably with them. He certainly had a unique perspective given his then recent experiences not only as a patient, but also as an individual with a physical disability. Dr. Manheim had a similar experience with his classmates; generally most were supportive of his endeavors in medical school. In the email that Dr. Dowell sent to his classmates and instructors explaining his background and his hearing loss, he requested that he be treated just like anyone else and that he could have “normal” conversations with others. Later on, classmates explained how helpful he had been in assisting them understand the experiences of patients with hearing loss. Dr. Dowell explained, “So I was kind of sought out on being the expert on deaf and hard-of-hearing patients even though I was a student. I don’t know if that was always the right thing to do or not.” He also invited friends of his into group conversations, who were also deaf or hard-of-hearing, to help his classmates develop a more in-depth understanding of those with hearing loss.

The participants detailed the personal attributes and support that enabled them to be successful in medical school. For some, it was a confidence to be able to openly discuss their disability and detail the accommodations or alternative techniques necessary to acquire information in different ways or to perform clinical tasks in unique ways. Others discussed an innate confidence, having endured hardships that have bolstered their own sense of self, and a determination and courage that helped them not only survive

medical school, but to thrive. Some found supportive classmates who were eager to learn more about the experiences of individuals with disabilities.

In Practice

At the time of this study, all the participants had become physicians, practicing medicine in their various areas of specialty. Each discussed their unique abilities and skills that they bring with them to practice. The participants noted that many of these attributes were developed through their experiences as an individual with a physical disability. The participants detailed how their experiences as patients and how, as individuals with disabilities, they have contributed to the larger medical community.

Uniquely valuable. The participants detailed the positive influences they have had on the lives of their patients, and also to the medical education community. Many of the participants are or were involved in teaching medical students, not only in the classroom, but also in the clinical setting, supervising medical students and recent graduates as they complete residency training.

Teaching. Dr. Manheim, who now has a teaching award named in his honor, described his interactions with supervising residents in the clinical setting:

They [the students] were generally supportive and interested in having the perspective of someone with medical training as a physician and then combining that with being somebody with a disability. They responded well to that and kind of tried to pick my brain, with my being an insider in the disability community.

Dr. Manheim could speak from a position of authority as a medical practitioner and as an individual with a physical disability. He further described the uniqueness of his experiences: “Well I think it was a benefit to the trainees to have that insight, to have

somebody from inside the disability community speak to them with some sophistication about the medical knowledge side of it too.” Others related similar experiences.

Dr. Mason noted that teaching residents is one of the most exciting things about his current work; he realizes that there are not many physicians with physical disabilities, let alone physicians with cerebral palsy. Graduate medical training can be arduous, yet Dr. Mason feels that he demonstrates to his residents that no matter the challenge, achieving one’s goals, in the face of hardship, is possible. His influence on residents has also positively affected how patients are perceived by these residents. There were times he would see other medical professionals regard children with special needs, or kids in the intensive care unit, less than favorably, and it would make him angry – as at one time, he was one of those kids. However, through his presence and teaching, those attitudes among others have changed. Dr. Mason reflected on how his residents often tell his story to the parents of the children under their care.

Dr. Vermont shared similar experiences to those of Drs. Mason and Manheim regarding his interactions with students. Some of his teaching is didactic, but most occurs in the clinical setting. His near-death experience has informed his own work with patients, and he has helped his students understand medical care using this type of individual perspective. He explained:

And I geared a lot of the stuff I was leading on with them around sort of philosophical issues, ethical issues around end-of-life stuff. And I was always looking for a way to invite the students to engage their personal life, their own experiences. So trying to teach what I had—work from where I was working from, and teach from that place too.

In this way, Dr. Vermont challenged his students to provide care from a place of introspection, just as he has done himself. Even though Dr. Vermont could ask his students to use their own experiences, it is unlikely any of his own students have had similar experiences with personal mortality. Although those students could extrapolate in an effort to provide better care, Dr. Vermont's personal experiences afford him a uniquely powerful perspective, one that enriches patient care.

Positives to patient care. In addition to teaching medical students and physicians in residency training about disability, participants have also positively affected their patients' care. In many instances, the participants exhibited behaviors that were consistent with the social model of disability, rather than a model that focuses on a traditional dichotomy of expert physician and naïve patient. Through the lens of the social model, the genesis of disability is not impairment; disability originates in how society treats individuals with impairment. Furthermore, from the perspective of the social model, disability is a normal part of human life and not a deficit that needs to be corrected. Even in medical school, the participants had an influence on others, which showed the power of the social model in how others perceived individuals with disabilities. Dr. Mason, who attended medical school in the Caribbean, described how one afternoon he was leaving school for the day and the mother of a young boy with cerebral palsy came running after him. She screamed:

“You're the one! You're the one!” I said, “No, I'm just a medical student.” She said, “Come with me,” so I got in her car. She took me to her house to meet this boy, and my heart was filled with compassion. He wouldn't talk to anybody. I

went to his house every day, played with him, did some therapy that I knew at the time that I went through.

Dr. Mason, who found out that the young boy had been ostracized and had been made fun of, helped organize a gala that raised money for his medical care. The boy would later have three surgeries and learned how to work, although no one thought that he ever would. Dr. Mason recounted how working with this child was a transformative experience for the island. He said, “We showed that the spirit was more important than a broken body.” The culture on the island at the time did not include options for children with disabilities. In a way, Dr. Mason demonstrated to those on the island that the boy could live a fulfilling and joyous life, and need not be socially constrained because of his impairment. The way in which Dr. Mason worked to change attitudes of those who knew this child is an illustrative example of how the social model can inform practice.

Dr. Mason has carried this spirit into his work as a physician, using his disability as a source of inspiration and hope. It is because of his disability, he feels, that he is a compassionate physician. He stated, “And my wounds are now my greatest testimonies, and those scars can be used to impact a lot of people.” When he tells patients or their family members that he knows what they are going through, he means it, and they can see that because of his disability that he has had similar experiences. He sees that patients and their families are happy to have met him, and parents will often comment to their children who have disabilities that they are just like their doctor. As a teaching tool, he often describes his disability to his patients, telling the kids under his care that he was born with cerebral palsy, describing how doctors have helped him, and that he eventually became a doctor himself.

His patients will often travel great distances to see him, knowing what he has endured. He explained why he feels he is so well received by his patients, “Because of what I’ve been through, I believe that they see that I take great care in what I do.” It is his compassion and empathy that he feels has made him so well received among his patients. Being a positive role for his patients is one that Dr. Mason seems to relish. Again, he has defied the medical model of treating patients as having deficiencies that need to be corrected, instead showing patients what he has been able to accomplish and perhaps showing them that they can live a productive and fulfilling life.

Dr. Vermont also feels that he is well received by his patients. There is an almost immediate trust that is granted to him from patients and their families. His injuries are obvious, which provides a readymade opportunity to discuss his experiences with others. Dr. Vermont described how a bond is developed between him and his patients. He explained that it is his physical appearance that first initiates that bond, “But it’s more just the appearance of my body that sends that signal that I’ve been in their shoes on some level, and that helps. That helps me and it helps them.” This bond also has an impact on the doctor and patient relationship. Dr. Vermont spoke of the expert doctor and naïve patient vertical relationship moving to a more side-by-side relationship, whereas he is a doctor and a patient’s advocate. For him, this has been a wonderful orientation for how he works with patients. Similar to Dr. Mason, Dr. Vermont works in parallel with his patients, taking an approach that is congruent with the social model of disability versus the medical model of disability.

In speaking to the participants, empathy often came up as a virtue that they felt they bring to patient care. To Dr. Dowell, it does not matter if a physician is disabled;

rather it is about what he or she is able to give to the patient. Compassion, empathy, and good communication skills are all attributes that Dr. Dowell has focused on providing to his patients. He discussed the role that disability has had in what he provides:

It's almost like you have a disability, you have a better understanding of other types of disabilities. And even beyond that is complex patient care. So people with chronic conditions often have a reduced quality of life. So those patients especially I think greatly benefit working with me or other people that have some hurdles to overcome.

It appears that the lived experiences of Dr. Mason, having encountered hurdles and barriers, helped him to relate to his patients. This personal understanding of the ways in which society is disabling is congruent with the social model of disability.

During the final year of his residency, Dr. Dowell received a cochlear implant, which has allowed him to effectively hear. Prior to his implant, he relied upon eye-to-eye communication and lip reading to aid in communication, which put him in more personable state. He stated, "So I'm not one of those doctors that's pounding away on a laptop and not looking at the patient." Although he does not rely upon lip reading as much as before, he recognizes the importance of personable communication and is careful to maintain the same level of communication as before the cochlear implant.

By and large, the participants described positive interactions with their patients. Dr. David and Dr. Marie each characterized their disability as a non-issue and often a positive when working with patients. Dr. Marie mentioned that during her first residency, patients would often comment on her disability, but saw it as being "awesome." Patients often mentioned how functional she seems. She has no difficulty

with any of her patients, and commented, “Most of them though it was actually pretty cool.”

Dr. David mentioned how his patients have remarked that he is an inspiration to them; yet, he does not feel that he is perceived much differently than any other physician, other than he looks a little different in how he holds his body. The perception of his patients is similar to how he seems himself in that he does not perceive himself as that much different. He stated, “and in day-to-day interactions, I do my best not to let that come through. Obviously the physical differences can’t be overlooked. But I think the whole point, is that I’m right there with everybody else physically.”

Dr. Manheim also spoke of his ability experience empathy for his patients. He described his interactions with patients:

They’re very pleased to have a healthcare provider that has more than a passing familiarity with disability. I think patients oftentimes feel like their physician doesn’t understand them well, can’t really appreciate their pain or their medical issues. So they perceive me as having a much greater ability to understand and empathize.

Almost every patient under his care initially commented on his disability, yet universally every encounter was positive. Feeling empathy and situating oneself to understand how others experience the world around them is consistent with the social model of disability.

Dr. Wayne also spoke of how his disability has influenced how he is able to empathize with his patients:

I think that they sense that I have more of an understanding that others might.

Now I’d like to think that that’s because of my disability. I mean I’d like to also

think that I just have a sense of my own compassion for people and understanding. But I am sure that has been deepened.

Although he senses that his understanding of others comes from his own sense of compassion, his disability has perhaps enhanced those abilities.

Patients, who come to see Dr. Wayne, continue to do so because they enjoy their relationship with him. Dr. Wayne discussed the importance of rapport and good communication with patients. He explained that first and foremost he does not treat them like a detached doctor. He jokes with them, is friendly, and is good at explaining things. Even though he cannot see them, his patients will often want him to review their x-rays or MRIs. Yet, his patients know that he is good at explaining medical information, and can talk in non-medical terms to aid their understanding. He explained that his skill as a physician is about having a “confident touch,” and that the competence as a doctor is mental, having nothing to do with vision.

Previously I have noted that society tends to have lower expectations for individuals who have disabilities, and this perception is perpetuated within the medical community (DeLisa & Thomas, 2005). Dr. Manheim found that his patients were often dismayed or intimidated that he held higher expectations of them. He explained, “My feeling is that people respond to the way they’re treated, whether you’re talking to a little kid or a physician in training, or a patient, an adult patient.” As an example, he discussed how he interviews new patients as part of their initial evaluation. He would ask his patients, including patients who are paraplegic or quadriplegic about their employment or career. Often he would see their mouth fall open, as if to ask, “What? You expect me to

be working like this?” After some time, his patients came to realize that he held higher expectations for them and became more comfortable.

Dr. Marie, in a similar manner to Dr. Manheim, discussed having high expectations for her patients. To her, empathy is a bit of a double-edged sword. She feels empathy for her patients who have struggled, have injuries, or have been through trauma, yet she has encountered patients who have attempted to unfairly take advantage of their status. As an example, she described a situation in which she was asked to complete a disability application for an individual with a degloving injury. A degloving injury is one in which the skin is removed from the underlying tissue, often resulting in severing the blood supply. She explained:

I can empathize with the fact that you have been through trauma and that your hand probably doesn't look the way that it used to. But it still functions. So I'm actually a little tougher on the population that's trying to play the disability card that doesn't need it.

Here, Dr. Marie expressed having empathy for patients, yet also maintaining high expectations. Despite having gone through trauma or injury, she expects her patients to still function in society, and not exploit their disability. Similar to other participants, Dr. Marie demonstrated behavior that aligns with the social model of disability. Without allowing patients to exploit their disability, she stated that she understands what they have been through, yet also expects them to fulfill typical social roles.

Despite physical disabilities, the participants discussed the value they bring to practice, in how they educate others, and in treating patients. For some, disability has enhanced attributes need to be a good physician, which include empathy and compassion.

The participants, with disabilities of their own, are certainly privy to the unique concerns of their patients; their own disabilities often serve to engender a different level of compassion. For others, serving as a positive role model for colleagues and patients has been a valuable contribution.

Continuing challenges. Despite all of the success that each participant enjoyed, not only in completing medical school, but also in their professional endeavors, challenges still remain. Dr. Manheim retired from practicing medicine full-time in 2012, as result of recurrent kidney stones, which was a condition related to his disability. Human resources guidelines mandated that employees must be full-time in order to qualify for life insurance. Going without life insurance, considering he has two young children, was not an option. Despite having retired a few years ago, he wishes he was still practicing, explain that, “The spirit is willing, but the flesh is weak.”

Approximately a year before his retirement, Dr. Manheim applied for a tenure track position within the university in which he was then employed. Although by any objective measure he was highly qualified, he was turned down by the university. Despite having two board certifications, outbilling and having a higher level of research productivity than many of his peers, he was still denied the opportunity, and was never offered reasons for how the university made their decision. He explained, “I think they suspected either it was just a play for the benefits or I’d be dead before I made tenure or something along those lines.”

Dr. Marie has also experienced some recent issues with how she is treated in the workplace. She has had to undergo numerous surgeries, resulting in a recurrence of symptoms, and has subsequently requested some changes to her office setting. The

accommodations have been refused, resulting in two compensable injuries. One injury requires surgery and the remedy for the other injury remains uncertain. No reason has been given for the denial of accommodations. The denial has resulted in extended worker's compensation as her organization has refused to follow the permanent arm restrictions provided by her physician. Dr. Marie summarized the situation with her employer:

My gestalt on the matter, because I'm actually in contact with a number of other individuals who are experiencing the exact same thing—and as a matter of fact I just received several emails from one of my colleagues—they're also denying her reasonable accommodations. I can't put motivation to it other than just pure maliciousness. There's no reason to not provide me with a keyboard and a monitor that I can see. This should not be difficult.

Dr. Marie recognized that the motivation behind the organization's denial of accommodations is difficult to determine. Her employer has refused to follow the permanent restrictions for her arm that have been provided by her physician, yet regardless of their rationale, the end result is that her request has been denied.

Workplace issues have also occurred with Dr. David. In a previous position, there was a perception that he was not meeting expected standards, which were not stated anywhere within the organization. In a conversation, his chair asked if Dr. David had thought about requesting accommodations to help meet the standard. Dr. David replied that he was indeed meeting the standard and had been since he had started at the organization, which had been a year and a half ago. It would appear that this situation

arose, perhaps out of perception, based on his disability, rather than any actual deficiency in work performance.

Even after completing medical school and residency training, some participants revealed challenges in practice. However it is apparent that those challenges are not due to physical limitations. That is, each participant is or was able to function as a physician, with or without accommodations. With Drs. Manheim and David, the challenge was overcoming incorrect perceptions. Dr. Manheim encountered human resource policies that effectively prevented him from practicing, resulting in his retirement. Dr. Marie's organization has failed to provide accommodations, or a rationale for not providing what she has requested. As of this time, Dr. Marie is progressing through the worker's compensation system, and because of additional outside medical issues, she has not returned to the office.

Emergent Themes

The previous three sections presented what was found at three distinct times for the participants: before, during, and after medical school. By presenting the findings in this manner, I hoped to contextualize the experiences of the participants across the journey. The follow section presents the themes that have emerged from the participant narratives.

Support from allies. Across the journey to medical school, the participants found allies who assisted them in realizing their pursuit of medical education. Prior to medical school, some of the participants found support from physicians, scientists, or others involved in health professions. Previously it was noted that Dr. Dowell received universal support from family and friends when he decided to pursue a career in

medicine. At the time, his family physician also supported his decision, and allowed Dr. Dowell to shadow him in practice. The experiences of Dr. Wayne are similar. When he discussed the importance of music in his life, he mentioned receiving support from his ophthalmologist, who not only supported his career choice of medicine over music, but who also determined that Dr. Wayne's central vision would remain strong enough to complete medical school and practice as a physician. What is noted is that some individuals received support that exceeds encouragement; some participants found supporters that became allies in their journey. Besides offering encouragement, these individuals offered advice, helped to demonstrate alternative methods of performing medical procedures and in many ways became partners in the journey.

More than encouragement. Prior to medical school, Dr. Manheim sent a letter of inquiry to scientists with disabilities who helped him identify ways in which he could be accommodated. In addition to using this information to help him recognize that he would be able to perform what was necessary in medical school, he was also able to include this information in his admissions applications to demonstrate that he had already thought of the ways in which he could be supported. Similarly, Dr. Dowell reached out to two deaf physicians who helped him anticipate what would be needed for him to be successful, and think about the unique barriers that he would encounter in medical school. In both of these instances, the community of individuals with disabilities that Drs. Manheim and Dowell contacted willingly shared information that assisted in their individual success. This sharing of information provided a great amount of support and is needed by individuals with disabilities who are contemplating medical school, especially

considering the disproportionately small percentage of individuals with physical disabilities who attend medical school.

Attending medical school was not something that Dr. Manheim had really ever considered. Dr. Manheim, who is quadriplegic, found support from the chair of his advisory committee as a graduate student, studying molecular biology. It was becoming apparent that with paralyzed fingers he would be ill-suited to be a lab technician. His chairman asked if he had ever considered medical school. Although he had not, the thought was both exciting and frightening. Additionally, it was another individual, the chairperson of a rehabilitation medicine program, who took an interest in Manheim after caring for him after a ruptured appendiceal abscess. This chairperson, who also supervised Dr. Manheim as a full-time graduate student, found him to be highly motivated and wrote a flattering letter of support for his medical school candidacy. Interestingly, these two individuals, two chairs of their respective departments, saw something in Dr. Manheim that he had perhaps not seen in himself, and provided the encouragement that ultimately piqued his interest in studying medicine.

Dr. Marie found the role of allies to be especially important; it was through the help of two physicians that she learned, prior to medical school, some of the procedures that she would be required to master. She found allies who helped provide instruction. The nephrologist with one hand, who allowed Dr. Marie to shadow him in practice, offered support by providing advice and helping her to think about what she would need to be able to do upon matriculation, that it was important for her to have figured out certain medical procedures prior to entering school. Dr. Marie's contact demonstrated, for example, that she could use a scratching technique, instead of percussion, when

examining the liver. With the help of the physician who performed her foot surgery during the time she decided to attend medical school, Dr. Marie learned how to suture. This physician took Dr. Marie into the operating room and taught her how to perform a suture using only one hand. Taking the time to assist an individual who was not yet in medical school, demonstrated the willingness of these individuals to support Dr. Marie's journey.

Some participants also found support during the clinical portion of their education. Dr. Vermont described a situation where he was treated poorly by a patient who was dismissive of his abilities as a medical student. His supervisor at the time, the resident physician quickly took a stand against the patient, which certainly helped Dr. Vermont see that there were allies who would support his training.

Dr. Marie described some of the help that she received during a psychiatry clerkship. Dr. Marie's initial psychiatry preceptors expressed little desire to have medical students train in his practice. One preceptor told Dr. Marie that most of his patients would not want her there and in the unlikely event that they would allow her in the same room, she was to sit in the corner and not say anything. Dr. Marie decided to find someone who would instead be more helpful to her learning. She sought out a psychiatrist that she already knew; it was someone who had worked at a facility where Dr. Marie had previously received medical care. She had an excellent clerkship and was trusted so much that when the psychiatrist was on vacation for a week, Dr. Marie served as the hospital psychiatrist. She covered the units and any consults that came through during that week.

For some participants, the role of allies played an important role in their journey through medical school. For some, like Drs. Manheim, Dowell, and Marie, the support occurred at the very beginnings of their medical education; they all received tremendous support prior to become medical students in the advice and information they received. It is also interesting to note that some of the participants self-selected their supporters, whereas the allies of other participants took the initiative in providing support. Dr. Manheim found support from individuals who felt he might be a good physician, although he had not previously considered a career in medicine. Dr. Marie on the other hand sought out individuals who would support her. She found physicians who taught her alternative techniques prior to medical school and a clerkship director who trusted her enough to allow her to serve as a psychiatrist as a third-year medical student.

It is also worth noting that for some participants, it was the support and encouragement from one specific ally that had a profound impact on their pursuit of medicine. Many found this support to be especially profound during their time as undergraduates. As an undergraduate student, Dr. Dowell recalled initial academic advisors who were dismissive of his application to medical school. However, he did eventually find an advisor who fully supported his decision to study medicine. Likewise, Dr. Manheim had a supporter in the chair of his graduate program. He had not previously considered a medical career, until this particular individual encouraged him to think about applying to medical school. Dr. Marie discussed the help she received from physicians prior to attending medical school. There were physicians who allowed her to shadow their practice, yet perhaps it was the physician who taught her to suture who had the most profound impact. Dr. Vermont found support from an ally when, during

medical school, after a bout of depression and the death of a close family member, he decided that he did not want to enter residency training, which would have effectively ended (or at least postponed) his medical career. The dean of his medical college encouraged him to participate in an internship; and it was this internship that spurred his interest in palliative medicine, which became his medical specialty. The transformative power of one individual should never be discounted; sometimes it is the support and mentoring by one ally that makes all the difference.

Disability support offices. All of the participants, with the exception of Dr. Wayne, attended medical school during a time in which providing reasonable accommodations were a legal requirement under the ADA of 1990 (Watson & Hutchens, 2005). However, other than Dr. Dowell, the participants did not discuss utilizing services provided by disability support offices. Recall, Dr. Dowell utilized note-taking services and found the use of sign-language interpreters to be helpful, especially during clinical training.

Given her fiercely independent nature, Dr. Marie did not avail herself of accommodations, nor did Dr. Wayne, who attended medical school before the ADA of 1990. Dr. David, who acquired his disability during the final year of medical school, and subsequently struggled with his Step 2 examination, had not considered asking for accommodations. Dr. Manheim's medical school did not have a disability support office, nor did Dr. Mason's, whose school was located in the Caribbean.

Despite not using the services of disability support offices, the participants found allies throughout the medical school. Dr. Vermont found an ally in the student affairs department who assisted him in developing an advisory committee who could discuss

disability issues with the chancellor. Dr. Vermont also recognized that his medical school understood that he could offer a unique perspective, and that although there would be little prior experience in helping an individual with a trilateral amputation, his medical school was willing to assist him.

Despite attending medical school in the Caribbean, and without the protection of the ADA, Dr. Mason found the administration to be very helpful. Those at the medical school were upfront by telling him that although they may not have the support that U.S. based medical schools have, they were willing to support him in any way that they could. Dr. Mason also found support from the clinical placement coordinator. When he was initially barred from entering his clinical placement in the U.S., the placement coordinator at this medical school threatened to never send students to that particular location in the future. Dr. Mason was ultimately given a clinical placement. Given that reasonable accommodations were a legal right afforded to five of the seven participants, it would be expected that disability support officers would have been identified as strong allies. However, some participants did not avail themselves of their services or found ways to support themselves, by finding the necessary accommodations independently.

It is also worth noting that not every disability support services office is able to offer the same level of services; capability to offer assistance varies by campus. Dr. Dowell attended a large medical school, which was part of a larger university system. Prior to his matriculation, he researched the services that were available at the medical school he attended. Dr. Dowell discovered that robust services for individuals with profound hearing loss were available which helped him make his medical school choice. Another participant had a different experience. As an undergraduate student and prior to

his diving accident, Dr. Manheim attended a school with an old campus, which lacked many of the accommodations that he would need to navigate campus successfully after his injury. After his accident in the late 1970s, and when he was a senior at the college, he also required tertiary-level medical care, which was unavailable in the community in which his original undergraduate institution was located. Dr. Manheim eventually transferred to a different school with a larger student population, with a more modern campus, and in a larger metropolitan area, which had the resources that he needed. Despite the best intentions of the disability support services office, an old campus, lacking modern accessibility measures, proved to be problematic. Availability of services and accommodation at undergraduate institutions have an influence on attendance for students with disability, and may ultimately impact the number of students with disabilities who pursue medical school.

Timing of disability acquisition. The timing of the acquisition of disability played a role in how the participants experienced medical school. The participants who were born with their respective disabilities or became disabled at a very early age had time to learn about navigating a society, which can be often unaccommodating or hostile to those with disabilities that those who acquired their disability later in life did not. Dr. Marie, who acquired her disability when she was seven, feels that children respond much better to the adversity of a disability than adults. It was during the years prior to medical school that she learned how to adapt, learned unique techniques to be successful, and developed a confidence in herself that lead to her success. She explained that by the time she attended medical school, she already knew who she was, and it was not a time of self-discovery. Dr. Mason, who was born with cerebral palsy, had a similar experience. He

learned how to adapt, and leaving home to complete his undergraduate studies helped him to become more comfortable in his abilities to live independently. Dr. Dowell was also born with his disability of profound hearing loss. During college, he learned much about the accommodations that he would later utilize in medical school to be successful.

Dr. Wayne, with eyesight that has progressively become worse, attended medical school with central vision that allowed him to function in a similar manner to an individual without an eyesight disability. He mentioned that individuals are often surprised that he is able to type and use a computer, both skills that he learned when his eyesight was functional. It was as his career has progressed that he has had to learn techniques, which he called “substitution” to be successful, such as listening to the noise that diagnostic equipment emits to assess the output. Had Dr. Wayne been blind prior to medical school, he is unsure if he would have even been admitted. Drs. Dowell, Mason, Wayne, and Marie had time to adjust to their disability, not only in how to navigate the social environment, but also in learning alternative ways to gather information and perform tasks.

Both Dr. Manheim and Dr. Vermont, however, acquired their disabilities later in life when they were undergraduate students. Also, neither had thought of attending medical school prior to their disability acquisition. After his injury, Dr. Manheim earned an undergraduate degree in genetics, and continued his education by completing a graduate degree in molecular biology, with the intentions of becoming a laboratory technician. When he attended medical school, he utilized some assistive devices for the first time, such as a specialized wheelchair that allowed him to stand. Dr. Vermont described his return to college after his injury as a period of intense and exhausting

readjustment. Those participants, who acquired their disability at an early age or at birth, did not experience this period of readjustment during college; instead, they had periods of adjustment earlier in their life, like Dr. Marie, or only knew life with their disability, like Dr. Mason.

Dr. David did not acquire his disability until the final year of medical school. As a result the final year of medical school was physically taxing. He faced readjustment to medical school during residency interviews, while also preparing for his Step 2 examination, a test required for graduation. Rather than disclose his disability, dystonia, to his medical school, he chose to not reveal his condition. It was during a particularly stressful time for most medical students that he was adjusting to his disability. He did not have the time that others did, prior to medical school, to form a disability identity, and stated that he was, for some time, in denial.

You don't belong here. At various points some of the participants received signals, both explicit and implied, that they did not belong. In the collegiate setting, belongingness is associated with a feeling of connectedness, of feeling that one is a part of a social group, and a feeling of being valued and cared for. This sense of belonging is important to the well-being of the student and their success in college. Belonging is also especially important in environments that are new, or where the individual may feel marginalized or unwelcome (Strayhorn, 2012). For students, medical school *is* different than their undergraduate experiences, and for individuals with physical disabilities, marginalization is a reality.

Dr. Mason, who attended medical school in the Caribbean, discussed the issues he experienced with his interview. A member of the admissions committee told Dr. Mason

that a majority of the committee would not admit him because of his disability and that his service dog would be problematic as some people are allergic to dogs. Dr. Marie also expressed similar difficulties. It was during her interview that she attempted to explain to the committee that she could complete the necessary procedures to successfully pass all of her clerkships, of which surgery was a particular concern. It was during her explanation that she feels the committee perceived her as being defensive. Even after the participants had been admitted to medical school, some still encountered individuals who felt they did not belong.

Dr. Dowell described a situation in which he received a failing grade for a clerkship; this was despite having performed well in the clinical, performing all of the necessary requirements, working well with the physicians, and scoring well on the clerkship shelf examination. When Dr. Dowell requested an explanation from the clerkship director, he was told that he did not have the right to be in medical school. Furthermore the clerkship director told him that he stole a spot from a more worthy candidate and that time and resources were being wasted supporting his physician candidacy. Challenges such as this experience for Dr. Dowell signaled that he did not belong.

Also as a medical student, Dr. Manheim had a similar experience in the clinical setting with two attending physicians on two separate clinical rotations. Although he was not explicitly told so, there was an underlying implicit attitude with both attending physicians that he did not belong. Dr. Mason also discussed the harsh treatment he received during a clinical assignment in internal medicine. A resident physician, who was supervising his work, would often ask Dr. Mason what others thought of his

disability. Dr. Mason replied that he did not feel that others would mind that he has a disability, to which the resident replied that if he were a patient, he would never let Dr. Mason treat him. The resident physician also complained that Dr. Mason was walking too slow, that he was not working fast enough, and that his best would never be good enough. The next day, Dr. Mason approached the program director and secured a different resident supervisor.

In addition to encountering individuals who felt that some of the participants did not belong, some also experienced those who felt that not only were the participants taking the place of more worthy candidates, but that they were requesting special treatment. During his first clinical assignment, the site clinical coordinator told him that he could not have his dog with him, and that no one at this school had communicated that the service dog would be joining Dr. Mason on his rotation to the hospital. He assured the coordinator that he was permitted to have his service dog and that the school was not obligated to inform her. Dr. Mason recalled the conversation he had with the director. He said:

“And I’m telling you is you don’t need to know anything about my disability. Whether I’ve got no limbs, no legs, I’ve got cancer or whatever it is, you don’t need to know. So my school doesn’t tell you.” And then she [the director] said, “It’s guys like you that ruin it for everybody else thinking you can do whatever you want.” I said, “Ma’am. I’m not. I’m just using my service dog.”

It was after the site coordinator threatened to ruin his academic career, and not allow him access to the clinical site, that he contacted the clinical coordinator at his medical school, who threatened to pull their school from the clinical site. The clinical coordinator

eventually found him another site to complete his clinical requirements. Dr. Mason was not requesting special treatment; he was simply requesting the same opportunities.

One of research questions focused on exploring how individuals socially constructed their disability within the medical school environment. It is during this process of self-discovery, that we see some of the emerging details of the ways in which their disability was socially constructed. The following section explores the finding regarding this identify construction.

Identity Development

The participants of this study, all of whom who have physical disabilities, did not acquire their disability at the same point in their lives. Some participants acquired their disability at birth, such as Dr. Mason, who was born with cerebral palsy, or as with Dr. Wayne, who was born with his disability, yet experienced worsening eyesight over time. For those who acquired their disability later in life, the timing occurred at different points. Dr. Marie became disabled when she was seven, and for Dr. Vermont, it was during his sophomore year as an undergraduate student. Prior to attending medical school, we see evidence of the ways in which some of the participants socially constructed their disability, and how it became an important part of how they developed self-identity, not only in medical school but also beyond. This identity often included a desire to become a physician, usually framed by a desire to help others.

Dr. Mason described that it was his experiences as a child with cerebral palsy, which inspired him to become a physician. He knew from a very young age that he wanted to become a doctor. “But I always knew I wanted to work in pediatrics, so I tell people ‘I know how you feel’ and mean it. And that’s been a core of my story.” He was

inspired by those physicians who provided care to him as a child and knew that he wanted to be a similar influence.

Dr. Mason described the importance of his faith and belief that he has been guided by God through the path of life. He was raised in a Christian home, yet shared two stories of his developing faith framed by his disability. He described a conversation he had with a sixth grade classmate after being made fun of by another student:

And then a kid was actually curious about my disability. And I said, “God gave this to me.” And I didn’t view it as a blessing, but just said that. And he was like, “That’s stupid. That’s not right.” I’ll never forget this. It was in an art class. And I just told him my story. I said, “Well I do believe in God.” And I did. It was a sixth grade conversation. Nothing deep. Nothing theological. And came home. I remember telling Mom, “I know why I have cerebral palsy. So I can tell other people about Jesus.” And it’s not about me. It’s about Christ. It’s about my faith.

Dr. Mason shared another poignant moment from his childhood that reflects his thoughts on faith and his disability. His physical therapist had urged his mother to let him get out of the house and do more. The therapist suggested an Easter egg hunt in a park near their home. Dr. Mason’s mother was reluctant and only agreed to take him once the therapist taught him to learn how to pick up and place objects in a basket. They worked together for four months and he was ready to attend the Easter egg hunt. On the day of the hunt, a gun went off and hundreds of children ran in every direction, leaving him, with his walker, behind. His mother knowing that he would be disappointed in not having collected any eggs, walked over to him to apologize, yet realized that his basket was

overflowing with eggs. All of the work that he had put in with the help of his therapist allowed him to pick up the eggs and place them in his basket, on his own. Dr. Mason framed it this way, “And that’s what it’s been. And it’s been clear as day, those blessings, and picking up those blessings. That’s what it’s been.”

Dr. Mason, who was in surgery almost every year until his 16th birthday further explained the role of faith in his life, even from an early age:

If I didn’t trust in something greater, if I didn’t know there was a bigger plan; what’s the point of doing what I’ve been doing? And that for me—I just knew that’s what it was. I learned to trust Christ at an early age because of what I’d been through.

Rather than wallow in self-pity, Dr. Mason found strength in something greater than himself. According to Dr. Mason, “Sometimes it’s holding onto God with just your fingernails. And I just learned at a young age—and this is the other thing that I tell people all the time is to be thankful for all things.”

Although he was teased by other children as a young child, it was not until college that he experienced severe ridicule. A day did not go by where he was not made fun of. He described an especially difficult situation with his roommates:

But I was very much mistreated in school. A couple of my roommates tried to hurt me. Some of that was a belief system. They were doing drugs and things like that, and I stood up against it. And I said I would die before I gave up the least, and they said, “We can arrange that.” So some of that just has to do with college students being stupid.

Despite the harsh treatment he encountered, Dr. Mason persevered and gained a newfound independence. For the first time in his life, he was living away from home, and had much to learn about living by himself. There were daily activities that an individual without disability might take for granted, such as taking a shower, driving, or grocery shopping, that Dr. Mason had to learn to do as an individual with a disability. Yet, despite the challenges, he was successful in living independently, which would certainly help when left the United States to study medicine in the Caribbean.

The experiences of Dr. Marie were a little different than that of Dr. Mason. She acquired her disability at a young age and seemingly learned to be independent from the very beginning. She explained that this independence came from the combination of the encouragement she received from her parents and her ability to discover what she needed to be self-sufficient. Her parents never coddled her, instead allowed her the freedom to fail until she learned what would work for her. How she developed an independent self-identity emerged when she discussed what she had learned about herself as a medical student. She said:

I mean that's kind of my point is yeah I learned a lot of those things before I got there. I mean it took me probably about 10 years to process my accident. So by the time I was getting out of high school and getting into college, I pretty much had already set things in place. I knew who I was, I knew what I was about, I knew what I could and couldn't do, and I was okay with that. So when I got to med school it wasn't an issue. There was no self-discovery to be had because I had already been practicing most of the things that I needed to do.

Dr. Marie further explained that she never considered herself disabled. “I’ve continued to do everything that I want to do unabated and without the need for people coddling me, without the need for assistance.” She does not present herself as disabled, and does not draw attention to her disability. She explained, “And a lot of people that know me, they don’t view me as disabled, and they very rapidly forge about that because it’s not the focus.”

Dr. Marie explained that having acquired her disability at such a young age, perhaps made it easier to adapt, than someone who acquired their disability later in life. Her brain and muscle plasticity gave her a better opportunity to recover than an adult might in a similar situation. She continued, “Children seem to respond much, much better to that type of adversity as opposed to adults. So that was on my side.” The way that Dr. Marie viewed herself, that she was only disabled in the strictest legal definition of the term, and would continue to live her life and do what she wanted to do unabated, was formed at an early age.

When he was eight years old, Dr. Wayne first developed signs of night blindness and was found to have tunnel vision. Yet at this time, he did not have any difficulty reading or maneuvering, and night blindness was not seen as a disease; it was not associated with any specific diagnosis. His teachers may have known that he had night blindness, but it didn’t interfere much with day-to-day activities and was not taken very seriously. His disability, in stark contrast to the disabilities of Drs. Mason and Marie, was not visible to others. Although it may have been known to others, he did not present as an individual with a disability. Academically he was one of the strongest in his class and stated, “So when I think I decided that I was going to go into medicine, I don’t think

anybody though there was any reason I couldn't. Because again, I did not have an obvious disability."

In addition to his strong academic background, music was, and continues to be an important part of his life. Early on, Dr. Wayne's parents started him on piano lessons, and he became so good that in middle and high school he was known for how well he played. He continued to play throughout his six-year BS/MD program and would often write and play satirical songs for skits that his classmates performed, which would often include satirical songs about his basic sciences professors. His musicianship must have left an impression on his medical school classmates. About 15 years ago, he contacted his former medical school classmates when he and his wife were considering a domestic adoption. Universally, his classmates asked two questions: "How are your eyes?" and "Do you still play the piano?" Prior to medical school, Dr. Wayne identified as an intellectual, even being part of a club known as the "genius pinochle league," yet interestingly he also developed an identity around music. Music was introduced to him through his parents, who were concerned over his eyesight, knowing that it would progressively become worse.

Unlike Drs. Mason, Marie, and Wayne, Dr. Vermont did not acquire his disability in childhood or at birth. It was during the sophomore year of his undergraduate year that he lost both legs and an arm following an electrical accident. Dr. Vermont described returning to school nearly a year after the accident, and initially confronting the physical aspects of his return:

So that was very intense and exhausting, but also kind of fascinating and exhilarating and a very rich period of adaptation. So not all bad. It was an excuse

in this very liberal arts kind of way to explore some of the human condition in a very different way, fueled by my brush with death. So it ended up being very rich fodder for my academic life, and it was very intentional. That could be therapeutic, and it was.

As graduation approached, Dr. Vermont did not have a strong sense of what he wanted to pursue vocationally however, he did know that he wanted to use his experiences as an individual with a disability in some direct way. He explained, “Rather than sort of trying to overcome them and put them behind me, it felt very rich as a tool in and of themselves.” He decided that medicine would allow him to use his experiences in service to others.

Deciding to pursue medicine was one outcome of the social construction of disability for some of the participants. Through a combination of their experiences as a patient and a desire to help others, some, like Dr. Vermont, felt that medicine would allow them to leverage their personal experiences for the betterment of others.

Dr. Marie became interested in medicine at an early age. She spent most of the summer between the first and second grade in the hospital, during the first few weeks undergoing surgery almost every other day. It was during this time, that her interest in medicine was initially sparked. She further explained how she thought:

And then as I progressed through my prosthetic fitting—and I hated them—I kept throwing them to the side—that increased that. And so about the time I got into high school was when I made that final decision of I’m pretty sure that I can do better, and I’m pretty confident that I can do this, so move forward.

Dr. Marie, who became interested in medicine through her experiences as a patient, also realized that there was much she could offer to the profession. She had been so frustrated with her prosthetics, and later explained that at the time, the trend was to get children into prosthetics as soon as possible. However, she recognized that she could do better and had the self-confidence to know that she had the ability to do something positive for others.

How Dr. Marie became interested in medicine, through her own experiences as a patient and having the self-confidence to know that she could do better is similar to how some of the other participant became interested in medicine. Some of the participants traced their interests in medicine to the influence of other physicians or healthcare professionals. Dr. Mason was inspired by the healthcare professionals who provided care for him as a child with cerebral palsy. Dr. David became interested in high school after learning more about the interaction of physicians with patients, knowing that he wanted to pursue a career where he would have the opportunity to work with others. Dr. Wayne's interest can be traced back to his father. Dr. Dowell became interested when a family member was diagnosed with cancer and when he experienced the home birth of a sibling.

Dr. Dowell, who had a wide range of academic interests, traced his initial interest in medicine to experiencing the home birth of his baby brother, and the breast cancer diagnosis of his grandmother. However, it was during college that he became more involved in community organizations, participating with individuals with disabilities, including those with hearing loss, and the deaf community. Similar to Dr. Marie, he knew that he had much to offer the medical community and began to ponder a career in

medicine, “and I thought it would be nice to kind of blend science with some of the social situations that I liked to get involved with. So it was kind of a complement thing—the social with the science.”

For some, medical school was not only a time in which they taught classmates and instructors about disability, but it was also a time in which they learned much about themselves. Dr. Dowell, who spoke of the importance of being proactive in notifying others about his needs due to his disability, found what he could be successful in medical school by putting in the extra time and effort. Given his disability, he recognized that to be successful, he would need to be prepared in a manner that his classmates did not. A guidebook for medical school success for students with profound hearing loss was non-existent. He often pre-read the material, maximized the usefulness of assistive devices through trial and error, and engaged with the disabilities services office on his accommodations. Having a variety of academic interests, he found that family medicine provided the diversity he was seeking in his career. He felt that working with patients through family practice, as a medical student and later as a resident physician, was an honor and privilege, and was a confirmation that it was the type of medicine he wanted to do. He recognized the lingering doubts that others had about the ability of a deaf person to be a doctor. However, success in medical school gave him the confidence to move forward in his career as a physician, which helped him through his residency education, and has continued to help him to this day.

Dr. Mason also discussed an inner confidence that continued to develop as a medical student. Although he never minded having cerebral palsy as an adolescent, it was not until medical school that he felt he was accepted and liked for who he was. In

his mind, he knew that he could be successful in medical school, yet experiencing how well most others responded to him affirmed what he already knew about himself. He also discussed how he felt about utilizing adaptive techniques, and more specifically his service dog. He decided that he was not going to be ashamed of his disability, and would stand up for himself when he knew that he needed assistance from his service dog. Despite the pushback that he received from some instructors during medical school, he resolved to express his needs and ultimately be comfortable with this decision. He explained that he was unwilling to deny himself his service dog, as the presence of his dog had little to no impact on others, yet for him, his service dog provides so much help.

Almost every participant mentioned perseverance in some form, either realizing that despite the obstacles they experienced in medical school, they could overcome those barriers, or that success in medical school was a confirmation of what they may have already known about themselves. Dr. Marie mentioned that for her, medical school was more of a confirmation in her ability to be successful, no matter the obstacles. Having acquired her disability as a child, she had already adjusted emotionally and physically to her injury. She was also fiercely independent, and with the support of her parents, was given the space to try and to fail, but then to try again, until she achieved success. These early strategies helped create a particular sense of confidence for Dr. Marie.

The challenge of medical school for Dr. David was also a confirmation of his determination and ability to overcome obstacles. Unlike the other participants who were afforded time to adjust to their disability, it was during his fourth year of medical school that he acquired his disability. It was during a period of intense pressure as he was preparing for the Step 2 examination and interviewing for residency positions that he was

able to persevere. Every participant in the study successfully completed all medical school requirements, persevered through residency training and eventually practiced medicine.

The ways in which the participants continued to socially construct their disability is evident in how they not only practice medicine, but also in how they view their role as caregivers and educators. Dr. Wayne discussed the role that his choice of medical specialty has contributed to his work as a physician and in his own identity. In medical school, he recognized that his eyesight would not enable him to pursue every medical specialty, especially something like surgery, yet he was not especially interested in being a surgeon. He considered psychiatry, but was not terribly excited about it either. After reading a book by Dr. Howard Rusk, a prominent physician who specialized in rehabilitation medicine, Dr. Wayne became interested in physical medicine and rehabilitation. Dr. Wayne found that he loved the idea of treating the total person, and of working with a team of people, which included physical therapists, occupational therapists, and social workers. It was an approach that he really enjoyed. He explained:

And what I did not, I think, realize was that a person who has a disability, which I did, has a certain opportunity to role model for patients and has a certain understanding that somebody who hasn't had the experience that would be much more difficult for them to be able to feel it.

When talking to patients, he understands the unique perspective that he is able to offer. As an example, he mentioned helping a patient who had a hip problem, and was reluctant to use a cane. He demonstrated to this patient, by using his own cane, how much more effective he was as a doctor due to using the cane. Dr. Wayne noted:

And I start walking with complete confidence around and about. And I said you can walk with a terrible limp and a lot of pain without a cane, or you can walk with very little or no limp with very little pain if you use a cane. Your choice. So it can be very powerful in terms of that.

Dr. Wayne believes that choosing the right specialty, in addition to non-conventional thinking, and knowing how to talk to people, are some of the reasons why he is a good doctor.

Dr. Wayne's current image of himself is certainly different than his perception of himself when he was still trying to find his place in medicine. When talking about physical medicine and rehabilitation, he spoke of the psychology that is involved, which he found difficult at first. The confidence in his self-image that he exhibits today was missing. He stated, "I think that I felt I was incomplete in a certain way, physically." Within physical medicine and rehabilitation, Dr. Wayne is a noted clinician, educator, and scholar, and leader, having held leadership positions with various organizations. He is widely published and is a full professor. He found that those within rehabilitation medicine are supportive of individuals with a disability and he is no different; he has found a very supportive and welcoming environment, and has a comfortable spot within that community.

Dr. Vermont has also certainly found a space within his choose field, that of palliative care. Initially, he was drawn to the idea of doing rehabilitation medicine like Dr. Wayne. It was an interest in the philosophical points of exploring what happens to life through trauma, injury, or disability that he found intriguing. Yet, Dr. Vermont ultimately became interested in palliative care, which focuses not on an organ or disease,

but on suffering and quality of life. He explained why palliative care was so appealing to him: “the subject of suffering is very subjective, so here was a field that made peace with the subjective real, but the rest of medicine is always trying to objectify everything.” It was through palliative care that he recognized that his own experiences could inform his practice. He explained:

And that meant there was plenty of space for my own experiences as a clinician—as a patient to be relevant in my life as a clinician. I was invited given the subject matter. It would be hard for me if I went into neurology or something. I could only very indirectly extrapolate from my experience.

His prior experiences of trauma, and his own awareness of mortality has become a core part of Dr. Vermont’s life and work in palliative care. Similarly, Dr. Dowell recognizes that his disability, hearing loss, is critically important to who he is and how he treats his patients. He described the role of hearing loss in how he relates to his patients:

But for me, who I am, how I relate to patients, and also—I mean, hearing loss is a critical part of who I am, and so I bring that to my patients. And I think it’s really an area where some people seek that out.

Dr. Dowell discussed the importance of good communication. He modeled his patient care on taking the time to really talk with patients, and not rush them in and out of his office. Prior to his cochlear implant, eye-to-eye communication was integral to communication, and although Dr. Dowell does not current rely on lip-reading, he is still sure to practice personable communication with patients. As much as Dr. Dowell’s disability is a part of who he is, it is also an important part of his practice as a physician. Prior to his last year of residency, he relied upon lip reading, which put him in a more

personable state, yet after the cochlear implant, he continued practicing communication skills as he had before.

Similarly to Dr. Dowell, Dr. Mason has constructed disability as a critical part of who he is. He described his disability as a mosaic, stating, “A lot of times in our lives you’re going through something, and you don’t know exactly why you’re going through it.” He continued:

You go through life, the mosaic. And when you look in front of a mosaic, it’s random pictures. It looks stupid. You don’t know what’s going on. It doesn’t make any sense. It looks really dumb. But you pull back, it’s a beautiful picture. It’s completely perfect and it makes sense. Out of small pictures, a beautiful picture has been made.

He further explained that cerebral palsy has been the galvanizing force through everything that he does, and see his life as a beautiful mosaic, a beautiful picture. He feels he has a God-given purpose and this focuses and drives him to continue to push forward, to fight for something.

As the participants have progressed from individuals seeking enrollment to medical school, to going through their respective curriculums, moving from the classroom to the clinic, then finally completing residency programs, and advancing to post-residency practice, their identity has been influenced by how they constructed their disability within their various environments and how people reacted to them. Some, like Dr. Marie explained that they knew who they were well before attending medical school. Her independent spirit was cultivated in adolescence. For others, like Dr. Mason, it was during medical school that they formed the foundation of how they would practice

medicine. His experiences on an island in the Caribbean formed the basis of his future medical practice. And for Dr. Vermont, it was during his engagement in palliative care, that he fully realized how critical his own experiences could be in helping others.

Summary

Within this chapter, the stories of the participants, from their pursuit of medical education all the way to practice, reveal much about how individuals with physical disabilities are treated within the medical education community. There have been challenges along the way and barriers that still persist. Yet despite these obstacles, the participants have all successfully completed medical school.

There were the expected obstacles which required alternative techniques or creative methods to acquire information, such as when Dr. Marie learned to suture with one hand, or when Dr. Manheim, who is quadriplegic, utilized tenodesis splints and a specialized wheelchair to participate in anatomical dissections. Perhaps more profound, each participant also encountered individuals who doubted their abilities, felt they may not have belonged in medicine, or held openly hostile attitudes about training students with physical disabilities to be physicians. For some, challenging issues began when they decided to attend medical school. Dr. Mason was initially discouraged from attending medical school. He also encountered admission committees who explicitly told him that medical education was not for him. Many discriminatory attitudes continued in medical school. During his clinical education Dr. Manheim encountered two attending physicians who felt he did not belong in the profession, as did Dr. Dowell who had a clerkship director assign him a failing grade, although he earned a passing score. The clerkship director felt that Dr. Dowell was taking the place of a more worthy student. Even into

practice, issues persisted. Dr. David explained a situation in which colleagues felt that he was not performing as well as he should; and Dr. Manheim was denied a faculty position, despite meeting the necessary qualifications.

Despite the obstacles, both the social and the physical, the participants found ways to be successful. Much of this success came from their intrinsic motivation to be successful, along with the help and encouragement that was received by allies across the journey. Dr. Marie found physicians who helped her learn alternative techniques to perform medical procedures both prior to and during medical school. Dr. Vermont found support from an attending physician after he encountered discriminatory behavior by a patient. The participants also detailed the personal attributes that enabled them to be successful. Many mentioned perseverance and determination. Proactively discussing their disability, which included educating others about what they could accomplish, rather than focusing on what they could not do and actively advocating for what they would need to be successful, proved to be helpful.

The benefits the participants bring to practice, not only in how they interact with patients, but also in how they assist others within the medical education community emerged through the narratives of the participants. Each brings a unique perspective to patient care. It is through their experiences as individuals with disabilities that a different level of compassion and empathy are formed. Dr. Vermont discussed developing a connection with his patients through his disability. Dr. Mason mentioned that he has been a role model to the children under his care, demonstrating what is possible, and Dr. Wayne explained that he perhaps is better suited to understand the challenges that his patients encounter.

Across the journey from medical school application to professional practice, we see how disability has influenced the development of the identity of the participants. It is through their interaction with their environment, often with other individuals, that their identity was impacted. For some, like Drs. Dowell and Mason, disability has become a critical part of their self-identity. A different perspective was offered by Dr. Marie who never has considered herself disabled. Despite these seemingly conflicting viewpoints, the participants offer much to the medical profession, with their personal insights into disability and patient care.

The stories shared by the participants have revealed much about the experience of individuals with physical disabilities in medical school. What has been revealed can help in our understanding of the ways in which society and medical education treats individuals with disabilities. The findings presented here provided the basis for recommendations for medical education and for future research in the final chapter.

CHAPTER 6: DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

The purpose of this study was to document and develop an understanding of the experiences of medical student with physical disabilities. I conducted interviews with seven physicians with physical disabilities, six of whom graduated with a Medical degree, the other graduated with a Doctor of Osteopathic Medicine degree. The participants, of whom there were six males and one female, identified as white. Additionally, six of the participants graduated from medical school in the United States, with the other attending and graduating from a medical school in the Caribbean. Understanding better the perceptions of the participants regarding their pathway to and through medical school can help inform medical education practice and contributes to the scant research on the topic of students with physical disabilities and their university experiences. Although the focus of this study was on the participants' experiences in medical school, the findings also reviewed information regarding their path to school and what has occurred after graduation and in residency training.

Oliver (2009) explained that the real challenge of disability research is to expose the ways in which those with disabilities are oppressed and face discrimination in their everyday lives. The goal is not to merely contribute to the literature, but to also contribute to the "classification and control of marginalized groups who seek nothing more than their full inclusion into the societies in which they live" (Oliver, 2009, p. 118). Oliver's thinking about disability based research evolved over time, and now he sees research not as an attempt to investigate the world, but as an action that produces the

world. Therefore, researchers do not simply change the world through investigation; rather research is an act that produces the world in different ways than the world has been already produced. This iterative and influential role of research is important for this study, as the intention is to have this research influence medical education and the experiences of students with physical disabilities. As well, providing an alternative of how individual experiences socially construct what it means to be a student with a physical disability helps to challenge historic deficit models of disability. It is incumbent on researchers within disability studies to create a world, “in which we can live as truly human beings” (Oliver, 2009, p. 116). This proactive and critical approach to the research provided an opportunity to look at the participants’ experiences more fully.

The importance of giving voice to those previously denied is only part of the role of the research. Empowering research participants provides a mechanism to improving their lived conditions, but the line between the researcher and those researched still remains strongly divided (Oliver, 2009). This research study attempted to blur this line of distinction. After all, the purpose of this study was to explore the experiences of individuals with physical disabilities in medical school. Therefore the participants of this study were collaborators. It was through their stories, and personal reflection on their experiences that I was able to present a discussion and conclusion. Furthermore it was an exploration into the subjective meanings that each participant created through experience and their reflection on those experiences.

Although the focus of this study was on the participant experience in medical school, looking at their progression from the application process, through medical school and residency programs, and ultimately into professional practice, complemented the

exploration of what occurred in medical school. Although an interview protocol was developed, participants freely spoke about experiences of their choosing. Yes, the interview questions were developed as a means to answer the research questions, but there were no restrictions placed upon what could be discussed. Further, I provided the participants with a summary of my thoughts of key points from their interview and they had an opportunity to offer corrections, additions, or commentary.

Using narrative inquiry, I have investigated the subjective meanings that the participants developed along the journey from applicant to physician. I found all of the participants very forthcoming about their experiences; not only did participants share the story of how they successfully gained access to and completed medical school, but they shared what their lives have been like as individuals with physical disabilities in our society. I learned about their successes, the support they received from others, and the personal qualities that helped them achieve success. The participants also shared the barriers they overcame, both those obstacles as a result of their physical impairment, and the societal barriers they faced. These stories helped me gain an understanding of how the participants have socially constructed their disability.

Prior to presenting the discussion and conclusions from the study, it is prudent to look at the primary research question for this study: How did former students with physical disabilities experience medical school? Additionally, the following four questions were developed to assist in understanding how the participants experienced medical school:

- A. What challenges and barriers (social and physical) did former students with physical disabilities experience in medical school?

- B. How do former students with physical disabilities socially construct their disability within the medical school environment?
- C. How were those barriers overcome?
- D. How did former students with physical disabilities achieve success in medical school?

The primary research question as well as the four sub-questions helped shape the findings and subsequent conclusions.

The previous chapter detailed my research findings regarding the experiences of the former medical students. This chapter explores how those findings relate to relevant literature, and perhaps most importantly, how the findings may be situated within the social model of disability as presented by Oliver (2009). In this chapter, I examine the physical and social barriers and challenges experienced by the participants, how those barriers were overcome, and how success was achieved. Success, for the purpose of this study, was defined as the successful completion of medical school and a residency program, and moving into medical practice. Additionally, the social construction of their disability will also be discussed. I will also discuss recommendations for how students with physical disabilities could be better served by the medical education community. Implications for practice help outline actions others might take as students with physical disabilities pursuing a medical degree, allies supporting students, and medical programs in general. Last, recommendations will be made for future research on the experiences of former medical students with physical disabilities.

Challenges and Success

Although the focus of this study was on the experiences of former medical students with physical disability during their time in medical school, it is apparent that any discussion on what occurred for the participants when in school is enhanced with an understanding of what happened prior to their matriculation. The number of students with physical disabilities who attend medical school is less than 1% (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996). The barriers that Dr. Post, an individual with quadriplegia, overcame to gain entry to medical school have been well documented (George, 1995), and although he did not participate in this study, some of the participants experienced the same issues that Dr. Post experienced. Specifically, participants shared that admissions committees were reluctant to admit individuals with physical disabilities. In this study, Dr. Marie, despite being very well qualified, failed to gain admission to her in-state medical school through two admissions cycles. The admission committee expressed concern that she would be unable to successfully complete her surgical rotation because of her disability because she has the functional use of only one arm and hand. Dr. Mason told of the treatment he received during his medical school interviews. He was explicitly told that that some members of the committee would never accept him into medical school because of his disability. One particular committee member told Dr. Mason that patients would be reluctant to see him because he has cerebral palsy.

It is also worth noting that of the seven participants, two experienced negative occurrences within the application and interview process. Another participant, Dr. David, did not acquire his disability until the final year of medical school, and Dr. Wayne

still had functional eyesight during his application process, and his appearance did not indicate to others that he had a disability. Drs. Vermont, Dowell, and Manheim took proactive approaches to the application process, which probably helped diffuse the negative type situations that Drs. Marie and Mason encountered. Certainly there are a number of reasons that would prevent an individual from gaining entry to medical school; one may not have the necessary requisites, may do poorly during the interview, or when compared to other applicants, may still not be offered admission. There are a finite number of positions for applicants, regardless of their qualifications. However, it is clear that because of their disabilities, Drs. Marie and Mason, just like Dr. Post, experienced hardship in their entry to medical education.

Dr. Post entered medical school in 1993, and Drs. Marie and Mason entered later, and graduated in the early 2000s. It is perhaps unsurprising that Drs. Marie and Mason shared similar experiences to that of Dr. Post as they all attended medical school in the same decade. The trend over time has been that a lower percentage of students with physical disabilities have been admitted into medical school (Moore-West & Heath, 1982; Moutsiakis & Polisoto, 2010; Wu et al., 1996). Other underrepresented groups, women and racial/ethnic minority populations have made significant advances regarding admission to medical school, however, individuals with physical disabilities have largely been left out of the diversity movement (Steinberg et al., 2010). Although both Dr. Marie and Mason entered medical school after Dr. Post, discriminatory behavior still existed.

Overcoming physical impairment. Before the development of the social model of disability (Oliver, 2009), prior models (e.g., medical, individual, rehabilitation, special education) tended to focus on physical deficits to define the experience of individuals

with physical disabilities. The deficit models emphasized physical impairment as the root of disability (Oliver, 1990; Pfeiffer, 2002; Shakespeare & Watson, 2002). However, the social model of disability recognizes that impairment is not the cause of disability; rather disability is a result of how the individual is treated within society (Shakespeare, 1996). Outside of disability studies, researchers still tend to utilize deficit models to explain disability (Pfeiffer, 2002), and the experiences of the participants suggest that deficit models are employed within medical education. The examples below help show why the deficit models are not appropriate to explain why attending medical school is not an option for qualified applicants with physical disabilities. Even though the participants attended and graduated from medical school in different decades, there was still a hegemonic reliance on the deficit models. Medical schools still emphasize strict technical standards and the concept of the undifferentiated graduate.

Each participant in this study learned to adapt so that they could perform what was necessary to successfully complete medical school and residency training. Dr. Marie, who acquired her disability as a youth, spoke of the freedom her parents gave her to explore, even at a young age. She reported that because she was not coddled, and her parents allowed her to experience failure, she was able to eventually discover how to be successful. Dr. Marie learned how to perform medical procedures using alternative methods than her classmates, and it was during this time that she learned how to suture with one hand prior to medical school. Despite her physical limitations, she adapted to the environment and found ways to achieve academic success in pursuit of her ultimate goal of becoming a physician. The deficit models do not align with the success she

achieved as deficit models dictate that the individual will never be able to be a normally functioning member of society (Shakespeare, 1996).

In a manner similar to Dr. Marie, other participants utilized alternative techniques to acquire the necessary knowledge, skills, and abilities to be successful in medical school and later in practice. Dr. Wayne utilized what he called, “substitution,” wherein he relied upon his other senses when vision would have been otherwise used. As examples, he described using his auditory abilities to assess diagnostic tests and utilized tactile techniques to perform patient examinations. Again, deficit models do not accurately describe Dr. Wayne’s experiences. Deficit models posit that an individual with impairment cannot be a fully functioning member of society because of individual limitation (Shakespeare, 1996).

The application of accommodations were also helpful to some of the participants. Dr. Manheim described participating in dissections with the use of a specialized wheelchair that helped him stand and orthopedic braces that allowed a gross pinch when performing dissections. Drs. Mason and Miller relied on their service dogs for support, both emotional and physical. Dr. Miller also used a stool in clinical settings when long periods of standing would be necessary. Dr. McKee used sign language interpreters and note takers and also, through trial and error, found a stethoscope that he could use as an individual who was deaf.

Interestingly, many of the participants did not utilize disability services offices at their respective medical schools. Some of the participants like Drs. David and Marie discussed their ability to overcome obstacles without assistance from others. It would appear that they did not utilize services that may have been available because they did not

need nor want the assistance. The stigma attached to disability, and those seeking assistance, as a weakness perhaps explains why some participants were reticent to pursue disability support services (Byron et al., 2005). Part of this stigma can also be attributed to the ubiquity of the deficit models of disability. From the perspective of these models, disability is seen as to render the individual unwhole, abnormal, or in need of medical intervention (Shakespeare, 1996).

Looking through the lens of the social model (Oliver, 1990) it is obvious that the physical barriers present within the medical school environment were disabling. It is often through technical standards that the participants were presented with obstacles to overcome. Without a wheelchair that allowed Dr. Manheim to stand or orthopedic braces, he would not have been able to complete his surgical rotations. Had Dr. Vermont had not been able to use a stool to occasionally sit during some of his clinical rotations, the challenge of standing for long periods of time may have been insurmountable. Without the service dog that assisted Dr. Mason stand for long periods of time, he may not have been able to successfully complete all of his clinical requirements. These examples serve to show that it was the participants who created alternatives to accommodate for their disabilities.

All of the participants found ways to overcome their physical impairments. For some, like Drs. Mason and McKee, success in developing alternative methods was the result of many years of discovery. Drs. Mason and McKee developed their disabilities at birth. On the other hand, Drs. Manheim and Vermont acquired their disabilities during their undergraduate education, and therefore needed to adapt to not only their impairment, but also to how they would be treated by society. The similarity among all

participants though is that everyone was able to find alternative methods to reach their full potential as medical students and as physicians. From a social model perspective, their physical impairments were not limiting, instead barriers existed in the physical environment in which they were expected to learn and train. Oliver (2009) reasoned that it is not the individual with impairment, rather society that should be the target of professional intervention. Simply stated, it is society that needs to change, and not the individual with disability. In the context of this study and looking at the physical aspect of disability, it is the medical school and clinical environment that needs to be changed, not the student. It is necessary to changing the didactic and clinical environment to allow students with physical disabilities an equal opportunity to learn and train as their classmates without disability.

Overcoming social barriers. Each participant overcame individual physical differences to be successful; however, it appears that the greater challenges were a result of how they were treated by others on the journey to medical school and those within the medical education community. Just as the participants overcame physical differences, they also found ways to transcend a range of social challenges. The barriers that the participants faced often began within the admissions process. Both Drs. Mason and Marie described difficulties they encountered with the medical school interview process. The interview committee expressed concern that Dr. Marie would not be able to complete her clinical requirements, and Dr. Mason was told that he has no chance of being admitted because of his disability.

Dr. Marie was given advice to wear a prosthetic arm and to wear a skirt to her medical school interview. That is, it was recommended that she change to what society

expected of her, and not do what was most comfortable. From the social model of disability (Oliver, 1990) perspective, we see that Dr. Marie was asked to adapt, instead of society adapting to her. Interestingly, when she did what was most comfortable to her, not using a prosthetic arm or wearing a skirt to her interview, Dr. Marie was finally admitted.

Ultimately admission committees are tasked with deciding the fit of each candidate to study medicine and their ability to obtain a post-graduate residency (Albanese et al., 2003). It is apparent that some admissions committees did not feel the participants would be successful in medical school. Thus, it would appear that some committees perpetuated a deficit model of disability. The medical school interview seems to be a particularly difficult barrier to overcome. Section 504 of the Rehabilitation Act and the ADA does not permit institutions of higher education to impose eligibility criteria that excludes individuals with physical or mental disabilities. Additionally colleges and universities must provide accommodations unless those accommodations fundamentally alter the program or result in undue financial or administrative burdens. Yet, as evidenced by the stories of the participants, barriers remain persistent. In part, the cost to educate an individual with a disability is often referenced as a prohibitive factor in admitting them to medical school (Hartman & Hartman, 1981).

Per federal legislation, the school is to bear the cost burden in providing accommodations to the student. There is the possibility that medical school admission committees, although aware that the Rehabilitation Act and the ADA that require that individuals with disabilities be given an equal opportunity to attend medical school, exhibit some bias in not offering admission to individuals with physical disabilities.

Individuals with physical disabilities may also be more prone to this sort of discrimination. For the most part, the participants of this study have disabilities that every admission interview committee could see; their disability could not be hidden. This physical evidence of a disability could have made them more open to discrimination, either explicit or implicit. Although the disabilities of the participants are physical, some are not as visible as others. Dr. Wayne, whose disability is now more apparent because of eye atrophy, would not have presented himself as an individual with a disability in medical school in the same manner as Dr. Manheim, who has quadriplegia. Similarly, Dr. Dowell, who has profound hearing loss, would not have necessarily appeared as an individual with a disability. Despite the differences in appearances, those without readily apparent physical disabilities still faced social obstacles.

Upon matriculation, the participants still encountered individuals who exhibited discriminatory behavior. Dr. Dowell was assigned a failing grade by a clerkship director, even though he had passed the clinical assignment. The director told him that he was taking the place a qualified student, and explained that Dr. Dowell did not belong in medical education. Demonstrating the pervasiveness of deficit models within society, it is not the norm for someone like Dr. Dowell to pursue the study of medicine. The type of thinking demonstrated by the clinical director is certainly counter to the disability paradigm described by Pfeiffer (2002). Within the disability paradigm, disability is an ideological act and there is nothing that inherently dictates who is normal or not (Pfeiffer, 2002).

During separate clinical experiences, Dr. Manheim endured implicit negativity from two attending physicians who also believed that he did not belong, and Dr. Mason

explained a situation where he was initially denied entry to his clinical site, in part because of his service dog. The participants have demonstrated that although overcoming their impairments and environmental barriers may have been a challenge, nothing proved to be impossible. Yet, we have evidence that their success was doubted, that they were treated unfairly, and that sometimes those around them felt they did not belong. The attitudes of others in this example align well with the social model of disability. The physical impairments of the participants were not the source of disability; rather it was how the members of this study were treated.

Research supports that society tends to have lower expectations of the abilities of individuals with disabilities (DeLisa & Thomas, 2005). For the participants in this study, there were instances where their abilities were doubted. It was during a psychiatry residency, that Dr. Marie was to do lumbar punctures, however when she entered the lab, someone informed her that she did not need to do the procedure, that it would be taken care of for her as if she did them. During medical school, Dr. Dowell found that his professors were hesitant to ask him questions during instruction, at least initially, until he informed that they could address him with inquiries.

Even after the physicians graduated and transitioned into clinical practice, some still encountered colleagues who underestimated their abilities. In one particular instance at a former position, Dr. David's department chairperson felt that he was not meeting certain performance standards. This situation was surprising to Dr. David, as these performance standards had never been mentioned in the year and a half that Dr. David was with this organization. Dr. David's perception was that his supervisor's opinion was based on perception and had little to do with actually meeting performance standards.

Inaccurate perceptions also seemingly negatively affected Dr. Manheim's faculty application for a tenure line position. Despite his record of excellence, he was denied a tenure track faculty position. By every measure he was objectively qualified, yet the university never offered a rationale for how their decision was reached. Dr. Manheim suspects that the university based their decision on his disability.

In these examples, participants were mistreated by those in the environment in which they attended medical school or subsequently went to work. Importantly, each demonstrated their ability to be successful. The participants found alternative means to acquire knowledge of perform procedures. However, it was often the case, that it was those individuals in medical school or their workplace who were discriminatory, or unhelpful, or who underestimated the abilities of the participants. In this case, it was others who constructed the disability such that individuals other than participants engendered a disabling society, which is the central presumption of the social model of disability (Oliver, 2009).

There were also instances in which individuals within the environment of medical education were supportive and accepting of the participants. From a social model perspective, this support demonstrates the role of others in constructing a positive environment for individuals with disabilities. The support that Dr. Marie received from physicians prior to matriculation is a good example. Someone helped her to learn medical procedures using alternative methods. This individual accepted that there are alternative means to reach the same result, and was a willing champion of Dr. Marie's pursuit of medical school. Finding such support was not unique to Dr. Marie.

During a particularly negative encounter as a student with a patient in the clinical setting, Dr. Vermont recounted the support he received from his supervisor, a resident physician. In this encounter, a patient was dismissive and treated Dr. Vermont with open hostility, yet the resident physician quickly came to his aid. Dr. Dowell also recalled the support he received from many of his clinical supervisors, especially the support he received during his surgery clerkship, whereas the surgeons were aware of his need to utilize non-verbal communication. It is this type of support, in which individuals with disabilities are freely accepted to and are fully encouraged to participate in society, which shows the power of the social model.

The participants especially found support from others within the disability community. Two participants in particular, Drs. Manheim and Dr. Dowell, were able to learn from the experiences of those who preceded them in medical or science education. Scientists and physicians with disabilities shared the coping practices they employed within the medical field to Drs. Manheim and Dowell respectively. In medical school Dr. Dowell was assisted by friends and colleagues within the deaf community who came to his medical school and spoke to the students about individuals who are deaf or hard-of-hearing. During a difficult time in his life, when confronted by worsening eyesight, Dr. Wayne found tremendous support at a disability conference. His experiences at the conference spurred his reintegration into clinical practice.

Oliver (2009) argued that the usefulness of the social model is its power as a tool. To Oliver, it is through the social model that disability can be eradicated by changing the way in which society is constructed. This change can be accomplished by removing the disabling barriers, both the physical and social.

The role of allies and the support they offered challenge just how entrenched the deficit models are within medical education and medical practice. Through their journey, the participants found individuals, many of whom did not have a disability, who challenged the assumption that they did not belong, which certainly supports the social model of disability. Dr. Marie found physicians who helped her learn medical techniques before she even entered medical school. Dr. Vermont found support from a physician confronted a patient who felt that he did not belong. It was Dr. Manheim's academic supervisors in graduate school who suggested and encouraged him to attend medical school. Also prior to medical school, Dr. Dowell shadowed his family physician indicating that he supported his pursuit of medical school. Many participants also spoke of the support they received from their classmate. This type of support, from those outside of the disability community, are illustrative of the changes that need to be made within society to remove the disabling barriers, which supports the social model of disability.

Resiliency and persistence. The participants demonstrated an ability to persevere through their journey to medical school and into professional practice. These personal characteristics, or what could be called grit, are associated with perseverance and a desire to accomplish one's goals despite obstacles (Duckworth, Peterson, Matthews, & Kelly, 2007). Almeida (2016) framed grit as the convergence of three elements: a passion for a specific area, preferring long-term goals over short term goals, and overcoming obstacles. It could certainly be argued that any individual pursuing medical education will probably display the three elements suggested by Almeida (2006), at least to some extent. Many of the participants showed a tremendous level of grit in

getting to and finishing medical school. Dr. Mason spoke of never taking “no” for an answer and his journey even took him to the Caribbean as he was unable to secure a spot in an U.S. medical school. Dr. David also mentioned the importance perseverance; he found that he had to persist and keep moving forward despite the obstacles he has faced after developing dystonia his final year of medical school. Dr. Manheim also found a determination to progress despite the negativity from others. During clinical assignments when physicians doubted his abilities, he performed meticulous patient examinations, ignored the implicit negativity within his placement, and did his very best in an effort to show that he did belong.

In addition to showing grit, some participants also relied upon an independent spirit to aid their success. Perhaps the best example comes from the experiences of Dr. Marie. She was never coddled by her parents, and was expected to discover solutions for herself, from the time she acquired her disability as a young girl. Although she would fail, she never quit, and did not meet an obstacle she felt she could not overcome. This independence stayed with her through medical school and into practice. Dr. Dowell also revealed self-determination in achieving success. Dr. Dowell found it necessary to find for himself, the accommodations which would allow him to acquire information in medical school. Self-determination in finding accommodations was not unique to Dr. Dowell. Typically, the medical school did not have previous experience in providing accommodations for their respective physical disability; and the process was more a mutual discovery of what would allow for the most success.

Summary. All of the participants have a physical attribute that is not typical of the common individual. Deficit models, such as the individual model of disability

emphasize that an individual with physical impairment is disabled because of those differences (Oliver, 1990; Pfeiffer, 2002; Shakespeare & Watson, 2002). Through the lens of the deficit models, disability is rooted in impairment; yet, the participants of this study were able to acquire the knowledge and skills needed to complete medical school and residency, prior to moving into practice. The participants' physical impairments were not disabling. Each found ways to be successful, either through creative alternative techniques, accommodations, innate personal attributes, or support from allies.

The social model identifies society as the cause of disability. Exclusionary practices, either purposely or unintentionally, coupled with negative attitudes and systematic barriers demonstrated that it is society that disables individuals (Oliver, 1990). The participants encountered situations in which they made the necessary changes to how they learned material or performed procedures to adapt to the medical school curriculum. Similar to how the participants adapted to the physical environment, each also found ways to engage in and participate in the social environment. Despite society's continued reliance on the deficit models of disability, the participants demonstrated an individual perseverance and motivation to counter how they were perceived. Although the ability of the participants to successfully complete medical school and practice may have been doubted, each found the means to achieve their goals.

Even through the passage of time, it is evident that deficit models continue to persist. During their progression through medical education, the participants experienced both structural and social barriers, and there was little change in the medical school environment across the years the participants were in school. There is still progress to be made in relegating the deficit models to their proper place in the study of disability; that

deficit models can be used to show why individuals with disabilities are perceived as being abnormal, broken, in need of rehabilitation, or unfit to fully participate in society. Instead, the social model, just as Oliver (2009) described, can be used as tool to facilitate social and political change. The social model demonstrates, just as the participants described, that it was the ways in which they were treated that was disabling. There were instances where the participants faced hostility, underestimation, misunderstanding, and confusion. The social model recognizes that society is the problem and not the individual with impairment (Oliver, 2009).

There is an interesting contradiction that is evident in the stories of the participants. It appears that some participants, Drs. Marie and David as examples, did not concern themselves with seeking assistance in medical school or in practice. Their attitudes were such that nothing was going to stand in their way of completing medical school, and changing their environment was not a concern. Instead, Dr. Marie and Dr. David assumed the burden of responsibility. As individuals, they adapted to their environment, and this may contribute to the continued use of the deficit models of disability.

Others, such as Drs. Vermont, Dowell, and Mason took more of an activist role as medical students. Dr. Vermont was influential in forming an advisory committee that presented the chancellor with disability issues and concerns. Dr. Dowell invited members of the deaf community to speak to his classmates. Dr. Mason talked about the transformation of the island in the Caribbean where he attended medical school. When he first arrived, people avoided him, fearing they might contract cerebral palsy, yet he met a child with cerebral palsy, they spent time together, and people began to think about

what was possible, rather than focus on the deficits. The child with cerebral palsy achieved much more than anyone had ever expected. The experiences of these individuals emphasize the role of society in perpetuating disability. Each took action to change how they were perceived by others, effectively making an effort to change their environment. These actions contribute to the social change that Oliver (2009) saw as the strength of the social model.

Recommendations

Through an active engagement with the participants, much has been revealed about their journey through medical education. Their stories show that although they experienced barriers, both structural and societal, each found a way to be successful in medical school and beyond. The concept of the undifferentiated graduate, the ways in which medical schools implement technical standards, and a lack of awareness and education on disability, are seemingly the greatest barriers preventing medical students from gaining admissions to medical school. The concept of the undifferentiated graduate and technical standards will be discussed followed by recommendations on how to overcome these two challenges to admitting individuals with physical disabilities to medical school.

The undifferentiated graduate. The concept of the undifferentiated graduate posits that every graduate of medical education should be able to enter any and all fields of medicine (Reichgott, 1996). The concept of the undifferentiated graduate originates from the 1950 report to the American Surgical Association of the Committee on Undergraduate Medicine, which stated that every medical student, upon graduation, should be able to enter “without handicap” any and all areas of medicine (Committee on

Undergraduate Education, 1950, p. 524). Medical students are to develop a “general competence” (Committee on Undergraduate Education, 1950, p. 524). Although “without handicap” is open for interpretation, it would appear that given the small number of medical students with physical disabilities, medical schools have interpreted “without handicap” to mean that that individuals who cannot enter all areas of medicine are to be excluded (Reichgott, 1996).

The participants of this study did not agree with the concept of the undifferentiated graduate; they found the concept to be inherently flawed. The participants of this study would not have been able to enter every field of medicine as the outlined in the policy definition. Drs. Wayne and Vermont, for example, specifically mentioned that surgery would not have been an option. Dr. Vermont shared his thoughts on the concept:

I think it’s flawed. I understand the notion. But like if I couldn’t stitch up—I think it’s an important piece of the puzzle that I wasn’t interested in or headed for or trying to go into a surgical subspecialty. And I could learn the way a medical student needs to learn, in generalities, about surgery.

Dr. Vermont further explained that just because he may not be able to easily stitch up a wound, it does not detract from his potency as a palliative care physician.

Dr. Manheim shared similar thoughts on the concept of the undifferentiated graduate, “I think it’s a myth. I think many people know what they want going in [regarding a medical specialty], and others who don’t know can easily be counseled to ensure a good fit between their capabilities and their interests.” Dr. Wayne believes that with his current level of vision impairment, he is not sure that he would be admitted.

However, at the time he was in school, he was able to do what was required to progress through the curriculum and graduate. He referenced surgery, not only in the difficulties that procedures would have caused, but also that his personality was ill-suited for surgery:

I wasn't and never would have been a good surgeon. I'm too thoughtful. But that's fine. You shouldn't have to be able to do everything really well. You should understand what these things are. I don't think you have to have taken out an appendix to be a good doctor.

Dr. Wayne drew a distinction between understanding the concepts surrounding surgery, without being required to perform the actual procedures. He explained:

I mean there are technical things that he or she does if they're a surgeon. But that's only if you're going to be a surgeon. I don't think you have to be able to do surgery to be a doctor. I think you need to understand surgery, the indication for surgery, the complications of surgery, pros and cons, and the physiological changes associated with it.

Dr. Wayne referenced Dr. Post, who as an individual with is quadriplegia, was initially denied entry to medical school. To Dr. Wayne, it was not necessary for Dr. Post to perform surgery to be a good doctor. He could observe surgery, and gain an exposure to it. Dr. Wayne emphasized that to be a good doctor, it is more important to have chosen the right specialty, rather than developing an expertise in every area.

Rather than exclude potential medical student by focusing on the hands-on aspect of medicine, it is recommended here that medical schools consider that not every individual will be able to master every medical procedure; instead, medical schools

should continue to emphasize the importance of cognitive ability. This recommendation aligns with the suggestion of Reichgott (1996), who has been perhaps the most outspoken critic of the concept of the undifferentiated graduate. Additionally, respondents to a survey, which included physicians and physicians-in-training, agreed that observation and communication skills were more important than strictly procedural skills in being an effective doctor (VanMatre et al., 2003). The participants recognized the importance of exposure to all areas of medicine, yet some did not see importance of requiring every student master all procedures. Dr. Manheim explained his position, “I think it broadens your perspective on medicine to have exposure to specialties other than the one you’re going to practice. But obviously I don’t agree that it should be mandated that you be able to do everything.” All of the participants have demonstrated that there are alternative ways of accomplishing the tasks necessary to be successful in medical school and in practice, which serves notice that the concept of the undifferentiated graduate, at least how it is currently applied in medical education, is incongruent in modern medicine.

It is the cognitive abilities of the physician that is most important. Dr. David shared his thoughts:

Cognitively, I think there should be no room for change, or no room for altered expectations [in reference to the medical school curriculum]. Also cognitive speed as well, when it’s required. But anything physical, I would say if there is a way around it that it’s reasonable, they’re adults at that point who can sit down and talk about what they want to do, the way they want to do it.

There appears to be a disparate assumption of what is expected of medical students and what physicians employ to be successful. Medical students are expected to develop a

fundamental knowledge and skills of all areas of medicine, and physicians, although continually developing new skills and knowledge, typically focus on one area of medicine (Reichgott, 1996). Emphasizing that physicians' focus on one area of medicine, Dr. Wayne offered the follow question, "Do you think that a surgeon is going to be any good on the psychiatry rotation? No, they won't be. They'll have no patience at all with these neurotic people."

The participants demonstrated that although they would not be capable of practicing in every area of medicine, each has found a medical specialty in which he or she has found success and has greatly aided patients and colleagues. It is the cognitive abilities of the participants that should be emphasized, rather than the ability to perform (or not perform) medical procedures. In revisiting the concept of the undifferentiated graduate, it is noted that the 1950 Report on Undergraduate Medical Education stated that the undergraduate phase of medical education is to focus on general competence, and the graduate phase (residency training) is the time in which the student learns a medical specialty. From another perspective, it can be argued that the 1950 Report, in which it was written that the purpose of medical education is, "to give the student a comprehensive concept of man and his diseases and to inculcate those habits of mind which will enable him to enter without handicap and one of the fields of medical practice and research," instead was intended to focus on the cognitive abilities of the student (p. 524). That is, the medical student is to understand and learn the comprehensive concept of man and disease before focusing, more narrowly, on a medical specialty.

Some participants argued that there is no such thing as an undifferentiated graduate. No one is truly undifferentiated. Each medical student will have different

personalities, different areas of skill and deficiency, and different interests and clinical skill. Simply put, not every graduating medical student will be prepared to enter any and all areas of medical specialty. Students with physical disabilities are held to a standard that is unlike their able-bodied peers. Personality differences and clinical strengths/weaknesses effectively prevent anyone from being truly undifferentiated. Yet, it is expected that each individual be physically undifferentiated, which only serves to demonstrate that much of society still privileges the deficit models of disability (Shakespeare, 1996). Because of innate differences, not every medical student will be undifferentiated upon graduation, yet students with physical disabilities are expected to enter every medical specialty. From the social model perspective (Oliver, 1990), this distinction provides another example that it is a disabling society, and not physical impairment, which is the root of disability.

I therefore recommend that medical colleges, with support and direction from the AAMC rethink the concept of the undifferentiated graduate. Medical students are held to a standard that is incongruent with what is expected of physicians, who develop expertise in a medical specialty. The physicians who participated in this study are all not able to completed every medical procedure, nor practice every medical specialty, yet each is successful in their particular area of medicine, whether it be palliative care with Dr. Vermont, or physical medicine and rehabilitation with Dr. Wayne. It truly is the cognitive abilities of the physician that are most important; the ability to synthesize information, and to provide a proper diagnosis and treatment plan is what should be valued above all else. Instead, the undifferentiated graduate should be those individuals who are not free of handicap but who possess the intellectual capacity to be good doctors.

The concept of the undifferentiated graduate does need further exploration. The participants, almost universally, revealed that there are some areas of medicine that they would not have been or are unable to practice predicated on their specific physical disability. However, just as the areas of medicine that were available to participants was limited, it is unwise to assume that every graduating medical student without disability, has the ability, clinical interest, or personality to enter any and all medical specialty.

Looking at technical standards. Technical standards have also served to deny otherwise qualified individuals entry to medical school. Through a series of AAMC responses to federal disability legislation, an emphasis on technical standards has made medical school an almost unobtainable goal for individuals with physical disabilities. Section 504 of the Rehabilitation Act indicated that no otherwise qualified individual should be excluded from participation in any program or activity receiving federal funding. This regulation included medical colleges; thus in reaction to the enactment of Section 504 of the Rehabilitation Act, the AAMC issued a report in 1979 that detailed the functional abilities that physicians must possess (Schwartz, 2012). These functional abilities included the following to be mastered by the medical student: observation, communication, motor abilities, intellectual-cognitive, intellectual-conceptual, integrative, quantitative, and behavioral and social (DeLisa & Thomas, 2005; Schwartz, 2012). The AAMC also stated that the medical student should be able to master these technical skills in a reasonably independent manner (Reichgott, 1998).

The intention of the Americans with Disabilities Act in 1990 was to provide clear, consistent, and enforceable standards aimed at strengthening the Rehabilitation Act and ending discrimination against individuals with disabilities. Again, the AAMC offered a

response to this new federal legislation. A 1993 AAMC report reinforced the technical standards that medical students should possess; the student should be able to experience pain, be able to touch, and to sense temperature, movement, pressure, and position (Schwartz, 2012). The Medical School Objectives Project (MSOP) was another report by the AAMC to further refine and identify the goals of medical education. Within the MSOP (1998) it is stated that students should be altruistic, knowledgeable, dutiful, and skillful. The MSOP appears to be a shift beyond the technical aspects of medicine, and instead focuses on the skills that society expects from further physicians. It is expected that physicians treat the whole patient. To be altruistic, physicians must be compassionate, empathetic, ethical, and understanding of the patient's needs. Knowledge focuses on an understanding the human body, of understanding structure and function, a comprehension of human disease, and on modern diagnostic and therapeutic practices. To be dutiful, physicians must be collaborative with their colleagues, must understand the factors (economic, psychological, occupational, social, cultural) that contribute to health. To be skillful, the physician must be able to obtain an accurate medical history, perform routine procedures, interpret the results of diagnostic equipment, reason, solve clinical problems, outline a treatment plan, and communicate to patients and the family of the patient. The objectives of the MSOP are broad in scope, and do not provide a strict outline of the technical skills needed to practice medicine. Certainly, the section on the skills required of physicians does not deny reasonable accommodation, however the document does not provide comment on the use of accommodations to master the skills required. Despite the MSOP, there still exists an adherence to technical skills needed to practice all area of medicine.

Technical standards should be re-evaluated. In recognition of the barrier to medical education created by the technical standards, the Association of Academic Physiatrists (AAP), in a 1993 document, offered clear recommendations. The AAP acknowledged the importance of holding all students, disabled or not, to the same high standards of medical education, yet offered that not every student will be able to master every technical skill. The strict adherence to technical skills, with a goal to graduate undifferentiated medical students does not support the social model of disability. Within the context of the social model of disability, both a strict adherence to technical standards and the concept of the undifferentiated graduate focus on what an individual is not able to accomplish.

Licensing and the ADA. Examining current licensing practices and how these practices comply with the ADA demonstrate that work remains to ensure compliance with federal disability laws. Through the authority granted by 10th Amendment of the U.S. Constitution, state agencies establish laws that protect the health, safety, and general well-being of its citizens (Schroeder et al., 2009). As such, state licensing boards were established to ensure that physicians meet competency and professionalism standards, a reasonable expectation from the public's perspective (Polfliet, 2008). Licensure is not only true for medicine, but also other professions, such as law. However, state licensing boards, primarily state boards of bar examiners, and to a lesser extent, state medical boards, have come under scrutiny related to ADA compliance (Schroeder et al., 2009).

Schroeder et al. (2009) discovered that most state medical licensing applications contain questions that seek information about the physical or mental health of applicants. However, these questions appear to be in violation of the ADA. The Federation of State

Medical Boards (FSMB) has declared that states may seek information to determine if the applicant has the “ability to practice” as a means to protect the public from harm. However, many state applications do not contain the “ability to practice” qualifier in questioning applicants about their medical and physical history (Schroeder et al., 2009). Courts have ruled, and the American Medical Association has affirmed, that state licensing boards focus on the conduct of the applicant and not physical or mental illness to remain compliant with the ADA (Polfliet, 2008). Compliance with the ADA and protecting the health, safety, and general well-being of the public is certainly a challenge. Yet, a proper examination of the ability of the physician to practice medicine, and a protection of their ADA rights can coexist.

Recommendations for changes to medical education. Asking society to abandon the deficit models of disability and to adopt the social model (Oliver, 1990) would certainly be the best outcome of any proposal to improve the lives of individuals with disabilities. This outcome will only be achieved when the attitudes of a society, which often emphasizes what individuals are not able to do, and views these deficits as the result of impairment, advances to understand that a disabling society is the cause of disability (Oliver, 1990). There are more immediate changes that can be implemented which can advance society in a direction where disability is seen as the result of how individuals with disabilities are treated, rather than impairment.

1. The AAMC should issue a statement, just as it has done in response to the 1973 Rehabilitation Act and the 1990 Americans with Disabilities Act, in support of individuals with physical disabilities who are otherwise qualified to apply to medical school. Yes, technical skills are important and the AAMC should continue to explore the

cognitive abilities and skills that are required of effective physicians. Students should be informed of the technical standards that are required of residency programs, and because of the unique skills and abilities needed for each medical specialty, students need to be informed of what is required for specific areas of medicine.

2. Medical schools should be prepared to admit and accommodate individuals with physical disabilities. The AAP recommended that medical schools hold all individuals to the same fundamental standards; yet the individual with a physical disability should be granted reasonable accommodations as a means to meet the technical standards. In compliance with federal legislation, those accommodations should not be made to fundamentally alter the essential function or nature of medical school. To further prepare for students with physical disabilities, medical schools should provide training to faculty and staff so that students with physical disabilities are treated fairly. Since a feeling of belongingness is often crucial to success, individuals with physical disabilities need to experience an environment that values their membership.

The Rehabilitation Act and ADA require institutions of higher education to provide reasonable accommodations to individual unless those accommodations fundamentally alter the program or cause an undo financial or administrative hardship. Although institutions may be reluctant to admit individuals who require costly accommodations, the cost of non-compliance is more severe. Institutions that ignore federal legislation risk injunctive relief, damages, attorney's fees, and the federal funds being withheld (Watson & Hutchens, 2005).

3. As recommended by the AAP, medical schools should develop written policies for admitting students with physical disabilities, and these policies be continuously

reviewed for changes in technology. Technological advances should be monitored for the development and implementation of accommodations. The written policies should also be freely available and widely distributed (unlike the current state of technical standards, discussed below).

4. All students should be informed of the standards that are required of each medical specialty during the matriculation process. The AAP recommended that each medical school properly advise each potential student on the technical requirements for each medical specialty. Again, not every student will be well-suited to train in each medical area post-graduation. This guidance should continue throughout the student's medical education so that there is a smooth transition into post-graduate training.

5. The medical school should provide laboratories, classrooms, and clinical settings that are accessible to everyone. The AAP also recommended that medical schools collaborate with individuals with disabilities to create an environment that meets everyone's educational and training needs.. Equipment and procedures should be modifiable to meets the educational needs of students with disabilities. Although this recommendation focuses on the physical environment, the AAP did also recommend that faculty, staff, and students should be made aware of the school's efforts to create an environment of understanding and acceptance.

As the participants of this study revealed, there were alternative methods to acquire the necessary knowledge and mastery of techniques needed to practice medicine. Medical schools should record those techniques and make them readily available to individuals with physical disabilities. For those individuals with physical disabilities who desire to attend medical school, others who have already completed medical school can

serve as wonderful resources, to not only share the alternative techniques they utilized, but also to discuss their experiences. For example, prior to attending medical school Dr. Dowell contacted two physicians who are deaf for advice on their experiences and what they did to be successful. The information that he gathered helped him in his pursuits of medical education.

6. Medical schools should create an environment of understanding, acceptance, and to go even further, to engender a personal responsibility that everyone is a factor in creating a positive learning environment for all students. It is everyone's responsibility to create an environment that signals that individuals with disabilities belong. Almost universally, the participants explained that education on disability was absent from their medical school curriculum, which is certainly surprising since the estimate lifetime prevalence of physical disability is approximately 3 out of every 10 individuals (Brault, 2012), and physicians will be called upon to provide care for these individuals. Therefore it is recommended that medical schools provide training to their students on the care of patients with disability. The teaching of disability etiquette, empathy exercises, talking and working with colleagues and patients with disabilities are some ways in which medical schools can educate faculty, staff, and students on the experiences of individuals with disabilities. It appears that the participants recognized the importance of their role in educating classmates, faculty, and staff on disability issues. Many participants identified education and training on disability as missing from their medical education, and to counter this, participants often took the opportunity to educate classmates and instructors. Educating others is one of the positives the participants offered to medical education. Dr. Dowell sent an email to his classmates and instructors that described who

he was, how he could be best supported, and that he wished to be treated as anyone else in his medical cohort. Dr. Manheim discussed the training he provided his residents physicians about the experiences of individual with disabilities. Dr. Mason talked about his teaching in the clinical setting as an attending physician on individuals with disabilities. Dr. Vermont openly discussed his experiences with classmates, who were genuinely interested in learning. The participants experienced medical school environments that did not explicitly train students on disability, which is certainly problematic.

Oliver (2009) wrote that, as a tool, the social model of disability can be utilized to remove the disabling aspects of society. Developing awareness and then an understanding of disability issues can inform the removal of the disabling barriers. A medical school environment, in which administrators, faculty, and students are aware of disabilities, and how they contribute to a disabling environment, can then be better positioned to enact changes to create a more positive environment for all individuals.

7. As recommended by Zazove et al. (2016), medical schools should make their technical standards readily available and accessible, and comply with federal disability legislation to accommodate students with physical disabilities. Zazove et al. found that nearly one fifth of medical schools do not make their technical standards available online and nearly two thirds of medical schools are not willing to provide accommodation for vision, hearing, and mobility disabilities. This non-compliance is a clear violation of the Rehabilitation Act and the ADA (Zazove et al., 2016). It is suggested here as well, that medical schools follow the suggestions offered by Zazove et al. Medical schools, by not indicating technical standards, or by offering reasonable accommodations to those

standards effectively are communicating that students with physical disabilities are not welcome.

8. Undergraduate institutions should be prepared to assist individuals with physical disabilities who wish to pursue medical school. Academic advisors, faculty, and career centers should all be trained on how to assist individuals with physical disabilities pursue medical school. Academic advisors were either not helpful or were unprepared to help some participants obtain admission to medical school. Dr. Dowell was even explicitly discouraged from pursuing medical school by a number of academic advisors. The social model of disability can be a tremendous tool, as Oliver (2009) advocated, in how disability is conceptualized. Physical disability, in and of itself, does not disqualify one from medical school. Therefore, undergraduate institutions need to be prepared to help those individuals who are interested in pursuing medicine.

Bringing Positives to Healthcare

A strict adherence to technical standards and the concept of the undifferentiated graduate, often without consideration to the possibilities of alternatives, contributes to the restriction of the type of individuals admitted to medical school. To name a few, reasonable accommodations, assistive diagnostic technology, alternative techniques/procedures, and physician extenders (e.g., nurses, physician assistants) are measures that can be employed to allow individuals with physical disabilities to attend medical school and practice as doctors. *Prima facie*, the concept of the undifferentiated graduate does not consider that not every medical student is suited to train, in residency, all areas of medicine. Dr. Manheim provided an anecdote that emphasizes that there are other characteristics to consider when determining one's medical specialty:

Our former babysitter is now a med student, and you ask her what's the weather like outside, and she wants to sit down and think about it for five or ten minutes before she answers. That kind of personality obviously would not be well suited for the ER.

He continued, "there's kind of a pre-selection based not only on scientific or clinical interests, but also personality type." Here, Dr. Manheim mentioned that in addition to personality type, scientific and clinical interests are factors that help determine the area of medicine for post-graduate training. However, the factors identified by Dr. Manheim have not prevented individuals from entering medical school, yet physical disability has been a limiting component.

The rejection of individuals with physical disabilities from medical school not only deprives the individual with disability the opportunity to practice medicine, but also denies to patients the positives that the individual with disability offers to the medical profession. Prior research has identified the positives that individuals with disabilities bring to medicine, both in education and in practice. Individuals with physical disabilities add class diversity, can be positive role models for patients and fellow students, help classmates develop a better understanding of what it means to live with disability or chronic illness (Hartman & Hartman, 1981; Moore-West & Heath, 1982). Dr. Mason discussed changing the culture of an entire island and specifically helping one child with cerebral palsy. Dr. Vermont challenges his students to approach medicine from a position of empathy, and Dr. Manheim, while he was teaching, offered his students the perspective of someone with clinical expertise as well as the experience of someone living with a disability.

In practice, physicians with physical disabilities may be better suited to relate to patients with disabilities (Meier, 1993). The foundation to medical care is the relationship between patient and doctor (Wainapel, 1999). This relationship can be enhanced through a greater level of empathy, which is often present in the relationship between patients and doctors who share similar lived experiences (Corbet & Madorsky, 1991; Hartman & Hartman, 2008). The participants of this study described the many positive that they bring to medical education and patient care.

Within medical school, some participants found allies who assisted them in their educational endeavors. Yet, this support was often mutual, which allowed some participants to show their classmates and instructors, that students with physical disabilities can also be successful. For some, this education began during the interview process. Dr. Manheim and Dr. Dowell reached out to practitioners with similar disabilities to their own for guidance and information on how to be successful in medical school. In turn, this information was provided during the application and interview process. Dr. Vermont proactively discussed his disability and framed his pursuit of medical education as a creative work in progress, to be solved through not only his individual efforts, but also by the school. After matriculation Dr. Dowell sent an email to his classmates and instructors informing them about his situation as an individual who is deaf and attending medical school. Again, Dr. Dowell was educating his classmates and instructors on what to expect and that he could be treated like everyone else.

Certainly, the interactions that the participants had with classmates helped to influence how they thought about individuals with physical disabilities. Dr. Marie, who learned to suture with one hand, often outperformed her classmates, who had the added

benefit of two hands. Her classmates wanted to watch as they were shocked and amazed at well she was able to perform the procedure. She also described encountering a classmate during her second year of medical school. This particular student apologized for not having realized that Dr. Marie only had one hand. Dr. Marie demonstrated to her classmates that she could be effective as a future physician.

Dr. Dowell also took the opportunity as a medical student to invite friends, themselves with profound hearing loss, to his medical school to teach his classmates about their disability and how to interact with individuals who are deaf, a very common impairment in patients. Dr. Vermont also described his influence on classmates and instructors. He found some of his classmates to be genuinely interested in his experiences as an individual with trilateral amputation. Given his affable nature, Dr. Vermont freely discussed his experiences and in turn, helped his classmates develop a greater level of understanding of disability.

As physicians, the participants detailed how they have enriched healthcare as clinicians. Dr. Mason, described how he can be a positive role model to those under his care, who are often children who also have cerebral palsy. Dr. Vermont described the unspoken bond that he often has with his patients. He described moving from a vertical naive patient—expert doctor relationship to a more horizontal orientation. In this new orientation, he is both a doctor and patient advocate, and one who has intimate knowledge on what it is like to be a patient. Dr. Dowell also noted that, as in individual with a disability, he feels that he has a better understanding of disability. He feels that patients benefit from working with physicians who have also had hurdles to overcome.

Other participants detailed the positives they bring to the care of patients through having a personal experience of living with disability. Dr. Manheim's perception is that patients are pleased to have a healthcare provider with more than simply a passing familiarity with disability, and that patients understand that he has a greater ability to understand their pain or medical issues. Dr. Wayne expressed a similar perception. He feels that his ability to empathize with patients comes from an innate compassion, yet his ability to relate to patients is perhaps enhanced by his experiences as an individual living with disability.

Society tends to have lower expectations of the abilities of individuals with disabilities, and this perception is also present within the medical profession (DeLisa & Thomas, 2005). However, and particularly with Drs. Marie, Manheim, and Wayne, some participants described having high expectations for the patients under their care.

Dr. Manheim often asked his patients, some of whom were paraplegic or quadriplegic about their employment. He noticed that often his patients were surprised that he would ask them such a question, as if to imply that they should not be expected to have a career in their condition. However, the patients came to realize that Dr. Manheim expected his patients to be fully functioning member of society. Dr. Wayne described similar encounters. Similarly, Dr. Marie explained that although she feels empathy for her patients, she has expectations that they fulfill typical societal role.

The standards that Drs. Wayne, Marie, and Manheim expected of their patients are a challenge to the deficit models of disability. Instead of accepting that individuals with disability or chronic illness will never hold typical social roles, that of productive members of society with careers, these participants expected more. Society currently

treats individuals with disabilities as less than whole. This in turn, has the effect of those individuals receiving different treatment in society (Oliver, 2009). However, the social model of disability presupposes that every individual may hold a valued position in society, something that Drs. Wayne, Marie, and Manheim expected.

In addition to enriching the practice of patient-care, many participants have also contributed through formal teaching and instruction. As a clinical instructor Dr. Manheim, taught physicians-in-training from a unique perspective. He merged his knowledge as a clinician with his experiences as an individual with a disability to teach physicians-in-training how to provide care to individuals with disability or chronic health conditions. Dr. Manheim found that his trainees responded well to his perspective as an insider in the disability community, and often sought his expertise. For Dr. Mason, teaching resident physicians is one of the more rewarding aspects of his current work as a clinician. He sees himself as a positive role model, by demonstrating that although graduate medical training can be arduous, that obstacles can be overcome. Despite having cerebral palsy, he has accomplished much in his life. Dr. Mason has also positively impacted how his colleagues perceive individuals with disabilities. There were times that other physicians and healthcare workers regarded patients with disabilities less than favorably, however through his presence and teachings, those attitudes have changed. Dr. Mason has found that his colleagues often share the story of his life to patients, that despite his disability, he has become a successful doctor. These actions by these participants in the educational and clinical setting certainly challenge the deficit models and encourage others to see disability as a social construct, one that is created by the barriers, both structural and societal, that are imposed upon those with impairments.

Dr. Vermont, who also teaches medical students and resident physicians, challenges his students to introspectively engage their own personal experiences, to enhance their work in patient care. Dr. Vermont has used his own brush with mortality to inform his practice and teachings around the philosophical and ethical issues of palliative care, his medical specialty. In the same way, he asks his students to make similar connections between their own experiences and patient care. Although it is unlikely that his students have personally experienced disability in a similar manner, Dr. Vermont calls on them to approach patient care from a position of empathy.

Until recently, the deficit models of disability have held a dominant position within society and in the study of disability (Pfeiffer, 2002). The deficit models posit that individuals are disabled because of impairments, and these impairments prevent the individual from assuming a functioning role within society (Shakespeare, 1996). That society has lower expectations for individuals with disabilities is demonstrated in the interactions that some of the participants have had with patients. In particular, some of the participants expressed surprise when the participants inquired about careers and work. It is as if society feels that individuals with disabilities are not expected to have careers and seek employment.

In addition, the participants themselves have all achieved the highest level of education and professional practice; certainly, they serve as examples of what is possible. Despite impairments, which under the deficit models should limit the role they are able to assume within society, each participant has found tremendous success, not only in medical school, but also beyond. The participants serve as role models, not only for patients, classmates, colleagues, medical school faculty, but society at large. The

accomplishments of the participants, both in medical school and in practice are counter to the deficit models of disability. Physically, the participants do not reflect the image of the stereotypical physician. However, Pfeiffer (2002) challenges the existence of the notion of normal. Despite physical impairment, the participants were not physically or cognitively incapable.

The experiences of the participants are also helpful in informing current physicians that the acquisition of disability later in life or developing chronic illness does not disqualify one from medical practice. Not all participants developed their disability early in life or at birth. Those who developed disabilities later also learned to adapt to the physical and social environment and equally found success as students and as physicians. The story that Dr. Wayne shared about a role model, Dr. Abramson, is an appropriate example of what can be accomplished after developing a disability later in life. Dr. Wayne recalled meeting Dr. Abramson for the first time:

And when you go into Arthur Abramson's office, you know there he is, a very imposing figure sitting behind his desk. And he's talking with you . . . And he's a T5 paraplegic. And basically he was the chief of orthopedic surgery for the European army during World War II. And he was shot by a sniper at the Battle of the Bulge and became a paraplegic. And he retrained and did a residency in rehab, and basically moved well up the ranks.

Dr. Abramson, who could no longer conduct surgery after his disability retrained in rehabilitation medicine, and became one of the pioneers in his field. The acquisition of disability or chronic illness does not disqualify someone from medical practice.

The participants demonstrated the positives they bring to medical education and the practice of medicine. They showed how they can often better relate to their patients, how they serve as positive role-models, can support their patients by holding higher standards, how they can demonstrate what can be accomplished despite physical disabilities.

Future Research

This study has revealed the experiences of seven individuals with physical disabilities, all of who successfully completed medical school, residency programs, and moved on to practice medicine. Their narrative accounts help to illuminate the physical and societal challenges they faced, and the ways in which they overcame those challenges to be successful. Yet, there is still much work to do.

All of the participants of this study were white and six were male. Future study should include participants who represent individuals who identify as non-white and should also include a greater number of female participants. The experiences shared by Dr. Marie suggest that greater ethnic and racial diversity among the participants will reveal additional and unique challenges, as some of her experiences were influenced by her gender. She perceived that there were times in which she was treated differently, often encountering negative attitudes, because of her gender rather than, or in combination with, her disability. I would expect the same to hold true for individuals who are non-white.

The participants of this study were also all successful in medical school. Future study should examine the experience of individuals with physical disabilities who were admitted to medical school, yet were not successful. It would be helpful to explore the

reason why participants did not finish medical school or did not match into residency programs. Again, their experiences would be different, in that each encountered barriers that they found to be insurmountable, which could be the result of personal decisions to leave medical school, or a decision made by the school itself.

A longitudinal study, following participants from the beginning, pre-matriculation, through medical school could reveal much about their personal experiences. This study examined individuals who had already completed medical school and were in practice or have practiced. Their experiences from medical school were based a recollections of past events, and the meaning that was ascribed to the past events of their lives. It would be interesting to examine how the individual makes sense of events as they are occurring; certainly different perspectives would emerge, which could help inform practice to assist students with physical disabilities. Within a longitudinal study, a further exploration of the social construction of disability may reveal findings that this current study did not produce. How do individuals in medical school construct their disability as it is occurring?

Since this current study examined the role of allies from the perspective of those who were helped, it would be interesting to explore the role of the supporters from their perspective. Examining how these allies perceive their role as allies would be helpful in creating an environment in which individuals with physical disabilities are supported. An in-depth analysis of the support they provided, how and if they receive formal training, and an inspection of their motivation could be helpful.

Zazove et al. (2016) recently conducted an exploration into medical school compliance with the ADA. Specifically, the researchers looked at how well medical

schools posted technical standards, had technical standards that supported accommodating disabilities, and who assumed responsibility for providing accommodations. Similarly, a study on medical school policies on admitting medical students with physical disabilities would provide much need clarity to admissions policies that may be prohibitive to those with disability.

Finally, the most recent study that looked at the percentage of individuals in medical school with physical disabilities was published in 2010 and looked at medical school graduates between 2002 and 2005. With the adoption of the UN Treaty in 2006, which provided a definition of disability that shifts away from impairment and towards the role of society in disability, it would be interesting to see if the percentage of individuals in medical school is still in decline or if the adopted UN definition has had a positive influence.

Conclusion

The experiences of the participants show that medical schools have much to learn about disability, especially in the concept of the undifferentiated graduate, technical standards, awareness of disability issues, and how to educate and train individuals with physical disabilities. The implementation of the recommendations offered are immediate measures that can be begin the construction of an environment where everyone is afforded the same opportunities, and is made to feel that they belong. The consequences of not admitting individuals with physical disabilities are the denial of the positives that they bring to the profession and to medical education. The participants of this study offered a greater level of empathy to those under their care, held higher standards for

their patients, served as positive role models to colleagues and patients, helped to educate others within the profession, and demonstrated what is possible.

This study found that for the participants, physical impairments may have created opportunities to study and practice medicine differently, yet those techniques also resulted in success. Overcoming physical limitations seemed to have been much more easily achieved when compared to the social aspects of pursuing medical school admission, and eventually medical education as an individual with a physical disability. We see the participants encounter a wide spectrum of discouragement from others. Within medical education, there were those who attempted to prevent them from going to medical school, those who felt they did not belong, that they were taking the place of someone more deserving (someone without disability), that they would never be an effective physician, or that patients would refuse to see a doctor with a disability. Yet despite all of this, the participants persisted, through a combination of an innate desire to succeed, with grit and determination, an intrinsic motivation to help others, through a determination to discover alternative techniques, and through support from allies.

Through this study, it is also evident how ubiquitous the deficit models are within society, and how disability is still viewed as to prohibit the study of medical education. Medical schools still align their policies with the concept of the undifferentiated graduate, which is a concept that was never truly obtainable, and in modern medicine is unreasonable. Without rethinking who is worthy of medical education, individuals who are talented will continue to be denied those opportunities to positively affect the educational environment and patient care. Through the use of the social model (Oliver, 2009), barriers and obstacles can be identified and removed, allowing students with

disabilities an equal opportunity. It is my hope that the research of this study, which revealed those impediments to success, as well as how the participants overcome the hurdles in front of them, demonstrates that physical impairment alone does not prevent someone from becoming a successful medical student and an effective physician.

Appendix A: Initial Email to Potential Study Participants

Dear Potential Study Participant,

In partial fulfillment of the requirements for my degree in higher education at the College of William and Mary, I am conducting a study entitled, *Medical Student with Physical Disabilities*. This study is primarily designed to help understand the experiences of former medical student with physical disabilities. I want to explore both the challenges and successes that individuals with physical disabilities experience in medical school

You are invited to participate in this study. I hope that this research will help the medical education community understand the unique experiences of individuals with physical disabilities. If you agree to participate, I will interview you about your experiences. I would like to conduct three interviews, with each interview approximately one hour each. The first interview will be about your path to medical school, the second about your experiences in medical school, and the final conversation will explore your life after school. Each interview will be audio recorded with your consent.

I feel this research has the potential to affect positive change within the medical community. I hope that you will consider participating in this study. Former medical students with physical disabilities are such a small community and I would be grateful for your assistance.

I am conducting this research as part of my dissertation, under the supervision of my dissertation chair, Dr. Pamela Eddy. Please know that your name and other personally identifiable information will be known only to me, the primary researcher. All personally identifiable information will be kept strictly confidential. Pseudonyms will be used in the final manuscript and in any subsequent publications or presentation. The audio recordings will be locked in my office and will be erased when the study is finished.

If you are interested in participating in this study or have any questions, please send me an email at mjdonlan@email.wm.edu or call me at 215-534-0368.

Sincerely,

Michael J. Donlan
Doctoral Candidate
College of William and Mary

Appendix B: Interview Prompts

Interview 1 – The journey to medical school

1. Please tell me about how and when you became interested in medical school.
 - a. Were there particular reasons why you decided to pursue medical school
 - b. Was there a critical incident that spurred your interest?
2. What was your undergraduate experience like?
 - a. What supported you while in college?—people, offices on campus
 - b. What challenged you while in college?—people, perspectives, policies
3. What was your path to medical school like?
 - a. The MCATs—accommodations?
 - b. The application process
 - c. Visits to the school/with faculty
4. How did those in your life at the time react to your pursuit of medical school?
 - a. Did you have mentors? Champions?
 - b. Family/friends, faculty
 - c. Admission personnel at medical school
5. How do you describe impairment/disability?
 - a. When did you acquire your disability?
 - b. How has your disability changed over time?
6. Other things I should know about your journey to medical school?

Interview 2 – Experiences in medical school

1. Can you please talk to me about your medical school experience?
 - a. Please tell me why you choose the school that you did
 - b. Tell me about your first year
 - c. Did your experiences change over time?
 - d. Critical incident?
 - e. What was the transition like between the didactic and clinical phases of education?
2. How would you describe how others (classmates, instructor, and clinicians) treated you in medical school?
 - a. Change over time?
 - b. Support
 - c. Disability groups – state/national
3. What experience did the medical school have in educating others with physical disabilities?

- a. Are you or were you aware of any others in your class or prior classes with physical disabilities?
 - b. Did anyone from the school reach out to you to help?
 - c. Were you aware of anyone at the school or in the clinical setting who had any experience training someone with a physical disability? If so, can you please tell me about your interactions with that person?
4. Can you talk to me about the barriers that you experienced (societal or structural)?
 - a. Did these barriers change over time?
 - b. What were some of the structural or physical barriers?
 - c. What were the society barriers (discrimination, attitudes, stigma)?
 5. Can you please think about how you adapted to medical school; what was the transition like for you?
 - a. Were there strategies or supports that you can identify that you used during the transition?
 - b. Can you please describe the transition (situation)?
 - c. How did personal characteristics (self) assist or hinder the transition?
 - d. How would you identify key transition points?
 6. What were the times like that were particularly difficulty or stressful?
 - a. Were these incidental or long-standing?
 - b. What helped your resolve/deal with these incidents?
 7. What did you learn about yourself?
 - a. What if anything would you differently?
 - b. How have you used your experiences to help others?
 8. Anything else I should know about your time in medical school?

Interview 3 – Experiences post-graduation

1. Please tell me about your work as a physician?
 - a. Tell me about your first positions?
 - b. Have you kept this position or moved on? Why?
 - c. Describe for me a typical day for you.
2. How do you feel your patients perceive you?
 - a. Does this differ by gender/age/SES/ability level?
 - b. Describe for me some exchanges with patients that refer to your physical disability.
3. What experiences in medical school best prepared you for your current work?
 - a. What helped in your transition?

- b. Were there individuals at the medical school to assist you in selecting residency programs?
- 4. How have you viewed your previous medical school experience with the benefit of hindsight?
 - a. How has your approach to being a doctor changed over time to accommodate your disability?
 - b. If you could design a better medical school experience for those attending with a physical disability, what would you change?
- 5. Is there anything else I should know about your post-medical school experiences?

MEDICAL STUDENTS WITH PHYSICAL DISABILITIES

You are being asked to participate in a research study. This study is called Medical Students with Physical Disabilities. This study is being conducted by Michael J. Donlan, PhD candidate at the College of William and Mary.

WHAT DO I HOPE TO LEARN FROM YOU?

The investigation, entitled “Medical Students with Physical Disabilities,” is designed to explore the experiences of former medical students (graduates and non-graduates) with physical disabilities.

WHY IS YOUR PARTICIPATION IMPORTANT?

Through the study of the experiences of individuals with physical disabilities in medical school, we may better understand their unique perspectives. These perspectives will inform our understanding of the challenges and successes of students with physical disabilities. This information will be helpful in creating educational environments hospitable to individuals with physical disabilities.

WHAT YOU WILL BE ASKED TO DO:

- Participate in three interviews. Each interview will last approximately one hour.
- Review discussion prompts prior to each interview.
- Review and respond to a summary of the interviews provided by the investigator.

BENEFITS AND RISKS:

- There may be no direct benefits to you as a participant. However, the information you provide may prove beneficial to the understanding of the experiences of individuals with physical disabilities in medical school. This information has the potential to help the medical education community better meet the needs of medical students with physical disabilities.
- There are potential risks to participating in this study. Some of the topics explored regarding disability may be evocative. You may recall experiences in medical school that were particularly stressful or challenging.

ADDITIONAL INFORMATION:

- The confidentiality of your personally identifying information will be protected.
- Only the investigator, through the information that you provide, will know your name and other identifying information. Neither your name nor any other

personally identifying information will be used in any presentation or published work without prior written consent.

- Interviews will be conducted in private. Interviews that are not held face-to-face may be conducted electronically (*Skype, FaceTime, Adobe Connect*, etc.). All interview transcripts will be kept on the investigator's personal computer.
- The audio recordings of the three interviews described above will be erased after the study has been completed and the tape recording devices that will be used for all of the interviews will be stored in the interviewer's home office in a secure location.
- You may refuse to answer any questions during the interviews if you so choose. You may also terminate your participation in the study at any time. Your participation in this study is completely voluntary.
- A summary of the results of the study will be sent to you electronically (to the email address that we have on file for you) once it is complete.

HOW CAN YOU CONTACT US?

If you have any questions or concerns about this study, please contact the faculty advisor, Dr. Pamela Eddy at pamela.eddy@wm.edu at the College of William and Mary, Williamsburg, Virginia (757-221-2334). If you have any additional questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact, anonymously if you wish, Dr. Tom Ward at 757-221-2358 (EDIRC-L@wm.edu) or Dr. Ray McCoy at 757-221-2783 (PHSC-L@wm.edu), chairs of the two William & Mary committees that supervise the treatment of study participants.

I have read the consent form. The study has been explained to me. I understand what I will be asked to do. I freely agree to take part in it and have the interviews recorded. I will receive a copy of this consent form to keep.

_____	_____
Signature of Participant	Date
_____	_____
Signature of Investigator	Date

Appendix D: Coding Schema

- **Barriers (physical)** – Aspects of the physical environment which obstructed progress or access.
 - **Access** – The participant described being able to have entry to certain aspects of medical education. This may be through reasonable accommodations or an increased understanding by those within the environment.
 - **Access (lack of)** - The participant expressed a lack of entry or connection to certain areas of medical education.
 - **Accommodation** – Modifications or adjustments that have been made with the intent to enable an otherwise qualified medical student complete program requirements.
 - **Adaptation** – The ability to adjust or modify behavior in response to one’s surroundings.
 - **Limitations** – The participant described that due to impairment, the inability to perform certain procedures or functions.

- **Discrimination** – The participant expressed unfair treatment, perceived to be due to their physical disability and not based on personal merit.
 - **Deficit** – The participant described others having viewed their disability as a deficit that was in need to correction, cure, or rehabilitation.
 - **Identity (dissonance)** – The participant detailed a medical school experience which created confusion in how they defined themselves.
 - **Stigma** – This is the “mark” that is characteristic of an impairment or defect.

- **Doctor-patient relationship (enhancement of)** – The participant expresses that he or she shares a lived experience with the patient and is able to better empathize with patients. This empathy enhances the doctor-patient relationship.
 - **Awareness** – Participant has identified the need to have an increased understanding of individuals with physical disabilities.
 - **Communication (successful with patients)** – The participant felt that he or she is able to effectively correspond with patients.
 - **Empathy** – The ability to sense how others feel and have an affinity for them.
 - **Sensitivity** – The participant explained that they have a greater understanding of a patients’ illness or disability.

- **Lack of Support** – The individual believed that others did not provide assistance or encouragement.
 - **Confusion (personal)** – The individual may be unsure of how to approach barriers (societal or physical).
 - **Injustice** – The participant described being treated unjustly or unfairly.
 - **Voiceless** – The participant has expressed that they did not feel they had a voice in medical school.

- **Misconception** – An often erroneous or mistaken notion. The participant may have believed that others have mistaken notions about their abilities.
 - **Confusion (from others)** – Participant expressed that others were surprised by their medical school attendance.
 - **Indestructible** – The sense that physicians are incapable of becoming ill.
 - **Superhuman** – A sense that physicians are infallible, incapable of being ill, and are all-doing, and all-knowing.

- **Negative Attitudes** – The individual experienced unwelcome and/or hostile attitudes from others.
 - **Dependency** – As a result of impairment, the individual is perceived as being reliant on others.
 - **Impairment (cognitive)** – The participant felt that others view them as cognitively defective.

- **Negative Interpersonal Feelings** – The individual expressed negative mental emotional thoughts.
 - **Impairment (emotional)** – The participant felt that others view them as emotionally defective.
 - **Isolation** – A sense of feeling of being alone and without support.
 - **Unwhole** – A sense that the individual is no longer complete or normal.

- **Positive Interpersonal Feelings** – The individual expressed positive mental thoughts.
 - **Acceptance (personal)** – The personal understanding and coming to terms with one's own impairment and/or disability.
 - **Productive** – A sense that you are able to successfully contribute to society.
 - **Successful** – A feeling that one has accomplished goals or attained specific goals.
 - **Valuable** – A feeling that one has the ability to be productive and benefit society.

- **Support** – The individual felt that others provided assistance and encouragement.
 - **Acceptance (from others)** – A feeling that others have gained an appreciation and respect for the participant.
 - **Advocate** – The participant described another individual or individuals who provided support.
 - **Advocate (personal)** – The participant expressed that they were able to express their needs.
 - **Voices (heard)** – The participant explained that in medical school someone listened to their concerns.

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Vita

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